SERVICE MANUAL

HIGH - RESOLUTION DISPLAY MONITOR
MODEL XC-3725C

MITSUBISHI ELECTRIC CORPORATION
DEC.1991

X—RADIATION WARNING

The surface of picture tube may generate X-Radiation. Precaution during servicing, and if possible use of a lead apron or metal for shielding is recommended. To avoid possible exposure to X-Radiation and electrical shock hazard, the high voltage compartment and the picture tube shield must be kept in place whenever the chassis is in operation. When replacing picture tube use only designated replacement part since it is a critical component with regard to X-Radiation as noted above. The high-voltage specification is described on adjustment procedure.

CRITICAL COMPONENT REPLACEMENT WARNING

The components marked "⚠" are critical components for X-Radiation. When replacing these parts, use exactly the same one. If broken the critical component, please contact with qualified personnel of Mitsubishi Electric Corp. or the company which indicated on name plate.

TECHNICAL
SPECIFICATION
FOR
37" COLOR DISPLAY MONITOR
MODEL NO. XC-3725C

MITSUBISHI ELECTRIC CORPORATION
NAGASAKI WORKS

DOCUMENT NO. DSP-B1114-A

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1. SCOPE

This specification contains specifications that establish the technical informations for high performance color display monitor which is operated with *TV signals of NTSC, PAL, SECAM and with a any type of personal computer, such as IBM VGA, Mac II, XGA and so on.
The color monitor is high resolution, multi-line rate (400~768 line) with auto-tracking (24~64KHz).

* There are automatically converted to 31.5kHz by a digital scan converter installed internally.

2. REGULATION

UL	: 1950
CSA	: C22.2 NO.950
TUV	: EN60950
FCC	: 47 CFR Part 15 Subpart B
DOC	: Radio Interference Regulations
VDE	: DBP Vfg. 1046/84 VDE 0871/06.78
DHHS	: 21 CFR Chapter I Sebchapter J
HWC	: Radiation Emitting Devices Regulations Chapter 1370
PTB	: Rov Vom 8.1. 1987
VCCI	: VCCI-1

3. ELECTRIC SPECIFICATION

3.1 CRT Description

1) Size : 37inch Diagonal
2) Deflection : 110 degree Diagonal
3) Electron gun : In-line type
4) Focusing method : Electro static
5) Focus lens : High focus voltage bi potential
6) Convergence method : Magnetic
7) Mask type : Black matrix
8) Trio Spacing : 0.85mm (center), 1.1mm (corner)
9) Array : Stripe
10) Phosphor type : B22

color	X	Y
Red	0.64	0.34
Green	0.30	0.60
Blue	0.15	0.060

(Typ. Value)

11) Phosphor persistence : Medium short
12) Light transmission : 45%
13) Face plate : Polished
14) Implosion Protection : Banded with mounting lugs

3.2 Power Supply

1) Voltage and Frequency : 100~120V / 220~240V ± 10%, switchable
   50 / 60 Hz
2) Power Consumption : 380 W
3) AC leakage current : less than 0.75mA at 100~120V
   less than 1.7mA at 220~240V

3.3 Video Signal Input

Input		Type of Signal	Sync. Signal	Input Impedance	Connector
VIDEO – 1 VIDEO – 2		Composite Video Signal NTSC (3.58MHz) M – NTSC (4.43MHz) PAL SECAM	} Auto – detecting	75Ω / High switchable	BNC RCA pin type
		Y / C Seperate signal (S – VHS) (VIDEO – 1 only)		75Ω	DIN – 4P
R G B 入力	RGB – 1 (ANALOG)	R, G, B 0~0.7Vp-p	H, V separate 0.3~4Vp-p TTL (free – polarity)	75Ω / High switchable	BNC
			H, V composite 0.3~4Vp-p TTL (free – polarity)		
			Sync. on green 0.3V		
	RGB – 2 (ANALOG)	R, G, B 0~0.7Vp-p	H, V separate 0.3~4Vp-p TTL (free – polarity)	Video Signal 75Ω Sync. Signal 75Ω / High	D – sub 15P
			H, V composite 0.3~4Vp-p TTL (free – polarity)		

Note – 1) On VIDEO – 1 and VIDEO – 2, only one connector of BNC, RCA pin type, and DIN – 4P should be used.

Note – 2) TTL level

Low : 0~0.5V

High : 2.5~5.0V

3.4 Display Color

R, G, B analogue input : infinite

3.5 Deflection

1) Horizontal Deflection
   Scanning Frequency : 24~64 KHz
   Retrace Period : less than 3.5 μsec.
2) Vertical Deflection
   Scanning Frequency : 40~120 Hz
   Retrace Period : less than 0.4 msec.

3.6 High Voltage : 31.5 ± 0.3kV

3.7 Degaussing : Auto - degaussing by power on and manual degaussing.

3.8 Audio

1) Amplifire	Input	: 150mV RMS 47KΩ
	Line output	: 150mV RMS
	Control output	: 150mV RMS
	Output	: 3W / 3W at 8Ω
2) Speakers	Size	: 7cm x 4cm
	Frequency	: 165~10KHz
	Output	: 1.6 W

(Internal speakers / external speakers changeable.)

4. SCREEN CHARACTERISTICS

4.1 Display Resolution : 720 dots × 400~768 lines

4.2 Display Size : Display size is pre-set as follows.
- NTSC/PAL/SECAM signal over scanning (5~10 %)
- VGA Mode (31.5 KHz) 660 ± 20mm × 495 ± 15mm

(Above figures can be re-adjusted by user)

4.3 Misconvergence (As display size is 660mm × 495mm)

Center	:	1.0mm max.
Other	:	2.0mm max.

4.4 Geometric Distortion (As display size is 660mm × 495mm)

1) Trapezoid Distortion	:	Horizontal	1.5% max.
		Vertical	1.5% max.
2) Pincushion Distortion	:	Top & Bottom	2.5% max.
		Right & Left	2.5% max.
3) Barrel Distortion	:	Top & Bottom	2.5% max.
		Right & Left	2.5% max.
4) Parallelogram Distortion	:	± 1° max.	
5) Rotation	:	± 1° max.	
6) Non Linearity	:	Horizontal	10% max.
		Vertical	10% max.

5. CONTROL FUNCTION

5.1 Front Panel Control

1) Main Power Switch : Main power circuit on / off.

2) Power Switch : Stand – by power on / off.

3) Source Select Switch : Video source selection.
(VIDEO – 1 / 2, RGB – 1 / 2)

4) Brightness Switch : Brightness control with Up and Down switches.

5) Contrast Switch : Contrast control with Up and Down switches.

6) Volume Switch : Audio volume control with Up and Down switches.

7) Balance Switch : Audio balance control of left and right sound with Up and Down switches.

8) Set Switch : For adjusting following functions
- Cancel Coil adjusting
- Display Mode preset
- C – sync Mode Select
- Color adjusting for Video input
- Sharpness adjusting for Video input
- Tint adjusting for Video input
- H – Width adjusting
- H – Phase adjusting
- V – Height adjusting
- V – Position adjusting
- Display off switch
- Address set

9) Call switch : Request for a indication on screen of video source and mode selected.

10) Mute SWITCH : Audio muting

11) Degauss switch : Manual degauss

5.2 Display Mode

The screen data which can be adjusted for each mode and each input are as following table.

INPUT / MODE	VIDEO – 1 / VIDEO – 2		RGB – 1		RGB – 2	
	NTSC M – NTSC	PAL SECAM	1	2	1	2
H – WIDTH	△	△	○	○	○	△x7
H – PHASE	△	△	○	○	○	△x7
V – HEIGHT	△	△	○	○	○	△x7
V – POSITION	△	△	○	○	○	△x7
BRIGHTNESS	○	○	○		○	
CONTRAST	○	○	○		○	
COLOR	○	○	–		–	
TINT	○	–	–		–	
SHARPNESS	○	○	–		–	

1) User adjustable functions (marked ○)
User can adjust screen controls marked ○ by the switches of the front panel or a wireless remote control.

2) Maker pre – set functions (marked △)
Screen controls marked △ are pre-set by maker to be compatible with typical PC's (VGA, MAC – II, XGA) and TV standards.

3) By auto – detecting function on mode – 2, of RGB – 2, the typical PC's (VGA, XGA, MAC – II) are detected and the screen controls pre – set are applied automatically.

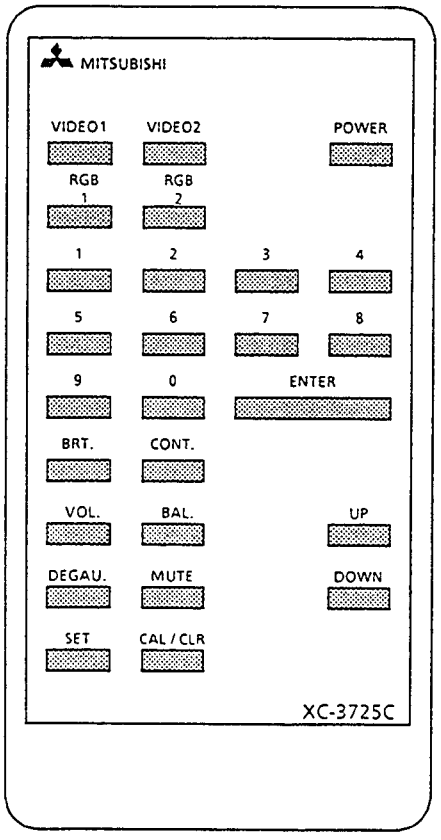
5.3 Wireless Remote-control (Model No. PCB-02)

1) Remote Control Method : Infrared

2) Power Source : DC 2.2V~3.3V
Battery UM-4 (1.5V) x 2

3) Controllable Distance : 6m min. (0°)
3m min. (±30°)

4) Control Switches
- ◦ Power Switch : Stand-by power on/off
- ◦ Video-1 Switch : Video source selection (Video-1 input)
- ◦ RGB-2 Switch : Do. (RGB-2)
- ◦ Ten Keys : Setting address No. on monitors and calling a monitor during multi-monitors controled by a wireless remote-controller.
- ◦ Other Switches : Same as 5.1 4) ~ 11).



5.4 External Control

The following functions are controlled with TTL level signal via [EXT CONT] connector (D – Sub 9P) on back panel.

◦ Video source selection	VIDEO – 1
	VIDEO – 2
	RGB – 1
	RGB – 2
◦ Display mode selection	MODE – 1 / 2
◦ Wireless remote – control	Enable / Disable
◦ Power (Stand – by power)	ON / OFF
◦ Manual degaussing	

6. MECHANICAL SPECIFICATION

6.1 Enclosure

1) Enclosure Material

Bezel and Connector – Panel	: P. S	
Others	: Steel Plate	

2) Color

Bezel	: GRAY	5GY4/0.3 & 5Y2/0.5
Others	: BROWN	2.5Y6/0.5
Connector – Panel	: GRAY	

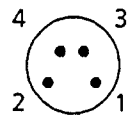
3) Dimensions

Width	: 865 mm
Height	: 742 mm
Depth	: 585 mm max.

4) Weight : 102 kg approx.

6.2 Input / Output Connectors

1) Video – 1 input

Connector	Pin No.	Signal	
BNC	—	NTSC (3.58 MHz) M – NTSC (4.43 MHz) PAL SECAM	1.0 Vp-p, 75Ω Sync – nega.
RCA Pin			
DIN – 4P for S – VHS 	1	GND – (Y)	
	2	GND – (C)	
	3	Y	1.0 Vp-p, 75Ω, Sync – nega.
	4	C	Burst level 0.266 Vp-p, 75Ω

2) Video – 2 input

Connector	Pin No.	Signal	
BNC	—	NTSC (3.58 MHz) M – NTSC (4.43 MHz) PAL SECAM	1.0 Vp-p, 75Ω Sync – nega.
RCA Pin	—		

3) RGB – 1 input

Connector	Pin No.	Signal	
BNC	–	Red	0.7Vp-p, 75Ω / High
BNC	–	Green	0.7Vp-p, 75Ω / High
BNC	–	Blue	0.7Vp-p, 75Ω / High
BNC	–	H / COMP – Sync.	0.3~4Vp-p, 75Ω / High
BNC	–	V – Sync.	0.3~4Vp-p, 75Ω / High

4) RGB – 2 input

Connector	Pin No.	Signal	
D – Sub 15P	1	Red	0.7Vp-p, 75Ω
	2	Green	〃
	3	Blue	〃
	4	H / COMP – Sync.	0.3~4Vp-p, 75Ω
	5	V – Sync.	〃
	6	RESERVED	
	7	RESERVED	
	8	RESERVED	
	9	GND – Red	
	10	GND – Green	
	11	GND – Blue	
	12	H / COMP – Sync.	TTL
	13	V – Sync.	〃
	14	RESERVED	
	15	RESERVED	

5) Audio input

Connector	Pin No.	Signal	
RCA Pin	—	Video – 1 (R, L)	150mVrms
〃	—	Video – 2 (R, L)	〃
〃	—	RGB (R, L)	〃

6) Audio Output

Connector	Pin No.	Signal	
RCA Pin	—	Line out (R, L)	150mVrms
〃	—	Controlled out (R, L)	〃

7) External Control

Connector	Pin No.	Signal	
D – Sub 9P	1	Video – 1 Select	TTL Low
	2	Video – 2 Select	TTL Low
	3	RGB – 1 Select	TTL Low
	4	RGB – 2 Select	TTL Low
	5	Manual Degauss	TTL Low
	6	Mode (Mode 1 / 2)	TTL High – Mode 1 Low – Mode 2
	7	Control Method (Remote – Cont / External – Cont.)	TTL High – Remo-Cont Mode Low – External Cont Mode
	8	Power on / off	TTL Low – Power on
	9	GND	

7. ENVIRONMENTAL CONDITIONS

7.1 Temperature

1) Operating	: 0 °C ~ 40° C
2) Storage	: – 10 °C ~ 55 °C

7.2 Relative Humidity

Operating	: 10% ~ 95% (Not condensed)

7.3 Altitude

: Sea level to 2133.6 m (at 25 °C)

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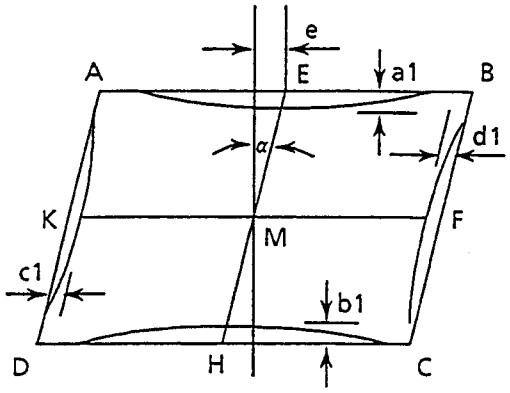
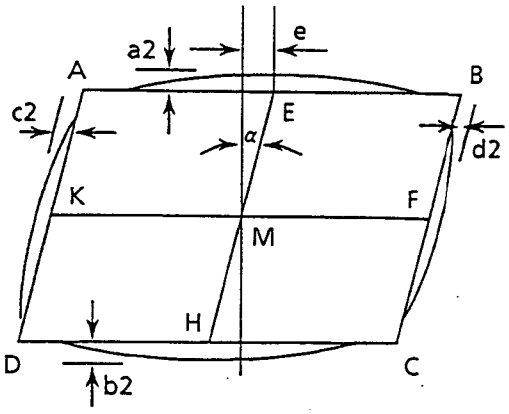
* GEOMETRIC DISTORTION





· TRAPEZOID DISTORTION

HORIZONTAL : $\frac{AD-BC}{AD+BC} \times 100$ (%)

VERTICAL : $\frac{AB-DC}{AB+DC} \times 100$ (%)

· PINCUSHION DISTORTION

TOP : $4\frac{a1}{AD+BC} \times 100$ (%)

BOTTOM : $4\frac{b1}{AD+BC} \times 100$ (%)

LEFT : $4\frac{c1}{AB+DC} \times 100$ (%)

RIGHT : $4\frac{d1}{AB+DC} \times 100$ (%)

TITLE	8. RASTER DISTORTION	

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· BARREL DISTORTION

TOP : $4\frac{a2}{AD+BC} \times 100$ (%)

BOTTOM : $4\frac{b2}{AD+BC} \times 100$ (%)

LEFT : $4\frac{c2}{AB+DC} \times 100$ (%)

RIGHT : $4\frac{d2}{AB+DC} \times 100$ (%)

· PARALLELOGRAM DISTORTION : $\alpha \leqq 1°$

TITLE 8. RASTER DISTORTION

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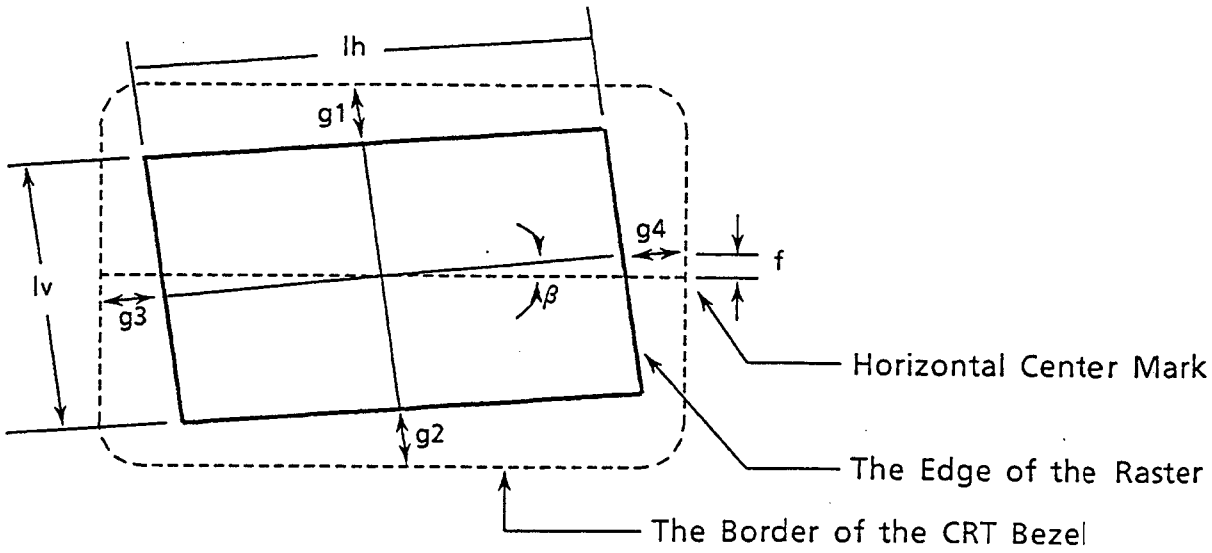

· CENTERING

HORIZONTAL : $|g3 - g4|$
To be adjustable to center by Horiz. Centering VR

VERTICAL : $|g1 - g2|$

· ROTATION : $\beta \leqq \pm 1°$

Including the condition of rotating the monitor through 360 degrees on a non – metalic surface.

TITLE 8. RASTER DISTORTION

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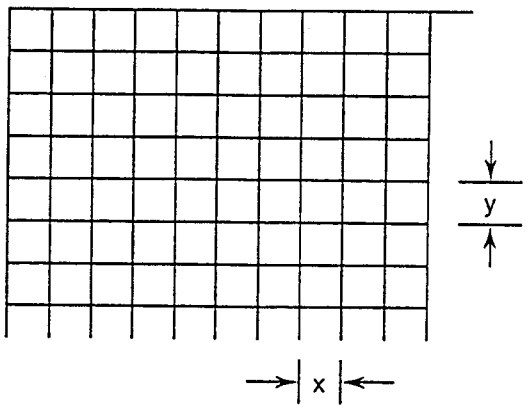
NONLINEARITY

Scanning nonlinearity is defined in terms of the pattern of horizontal (17 lines) and vertical (13 lines) lines produced by the cross-hatch pattern generator.

ex)



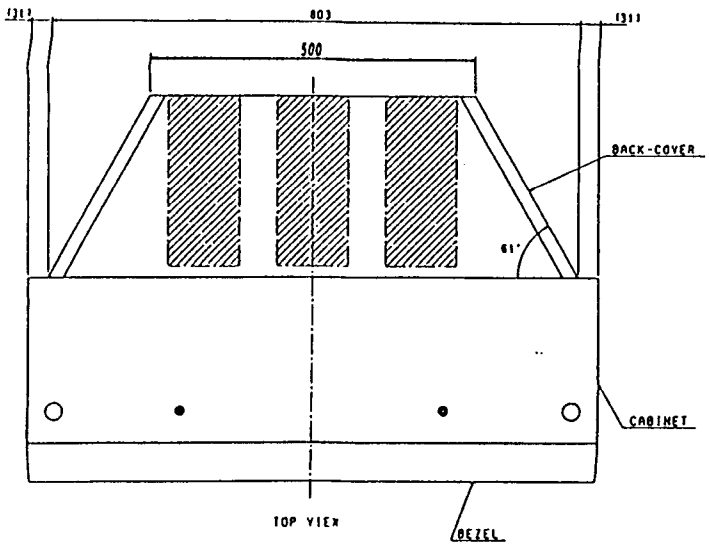
Horizontal nonlinearity

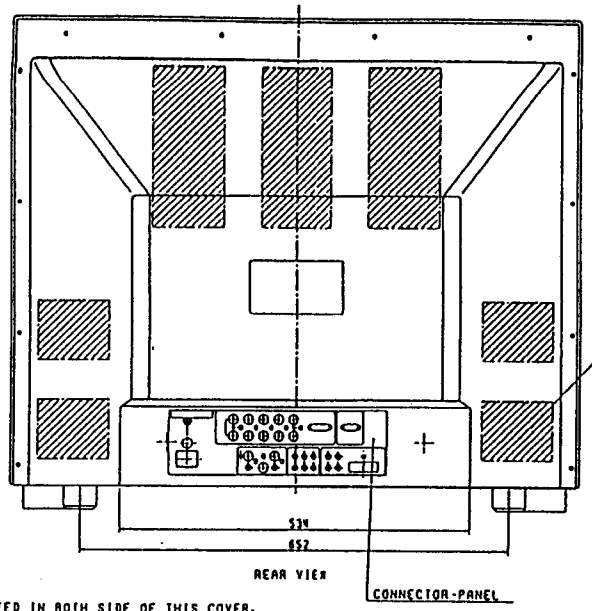
$$\frac{(Xmax - Xmin)/2}{\overline{X}} \times 100 \quad (\%)$$

Vertical nonlinearity

$$\frac{(Ymax - Ymin)/2}{\overline{Y}} \times 100 \quad (\%)$$

TITLE	8. RASTER DISTORTION	





NOTICE

COLOR : BEZEL--------GRAY EXCEPT FOR THE HATCHED SPACE.
HATCHED SPACE IS BLACK.

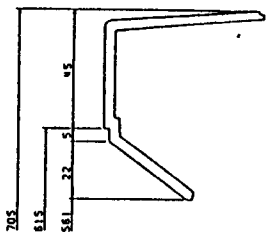
SIDE-COVER---BROWN

BACK-COVER---BROWN

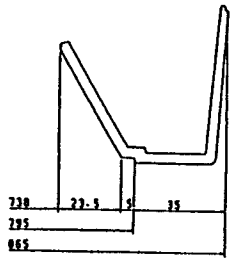
CONNECTOR-PANEL---GRAY

WEIGHT : APPROX 102KG

HATCHED SPACES AT BACK-COVER ARE VENTILATORS.

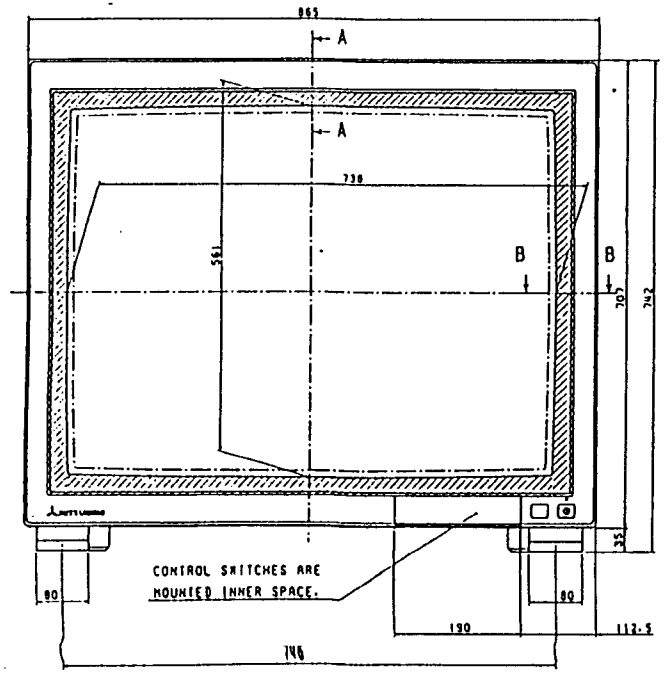


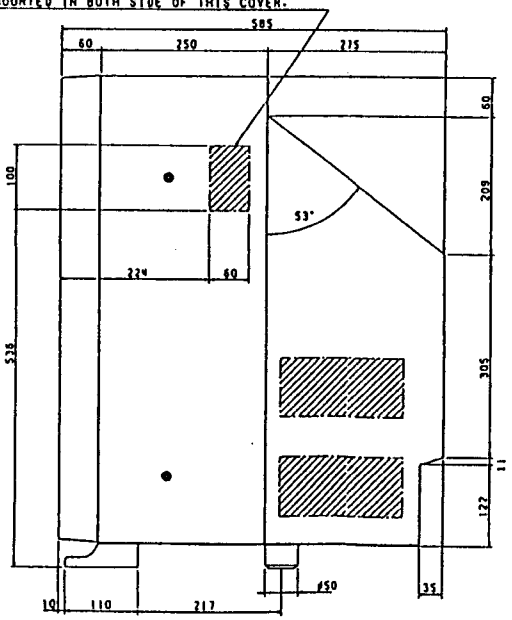
SECTION A A
(SCALE:1/1)

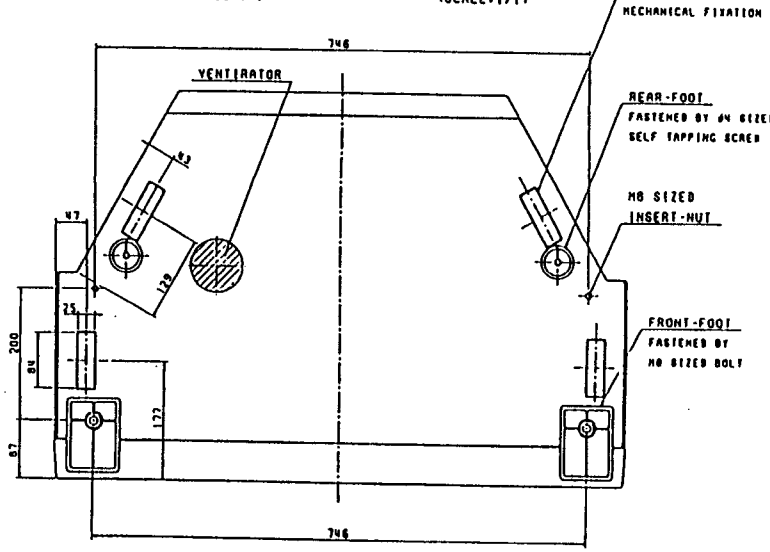


SECTION B B
(SCALE:1/1)

SPEAKERS ARE MOUNTED IN BOTH SIDE OF THIS COVER.





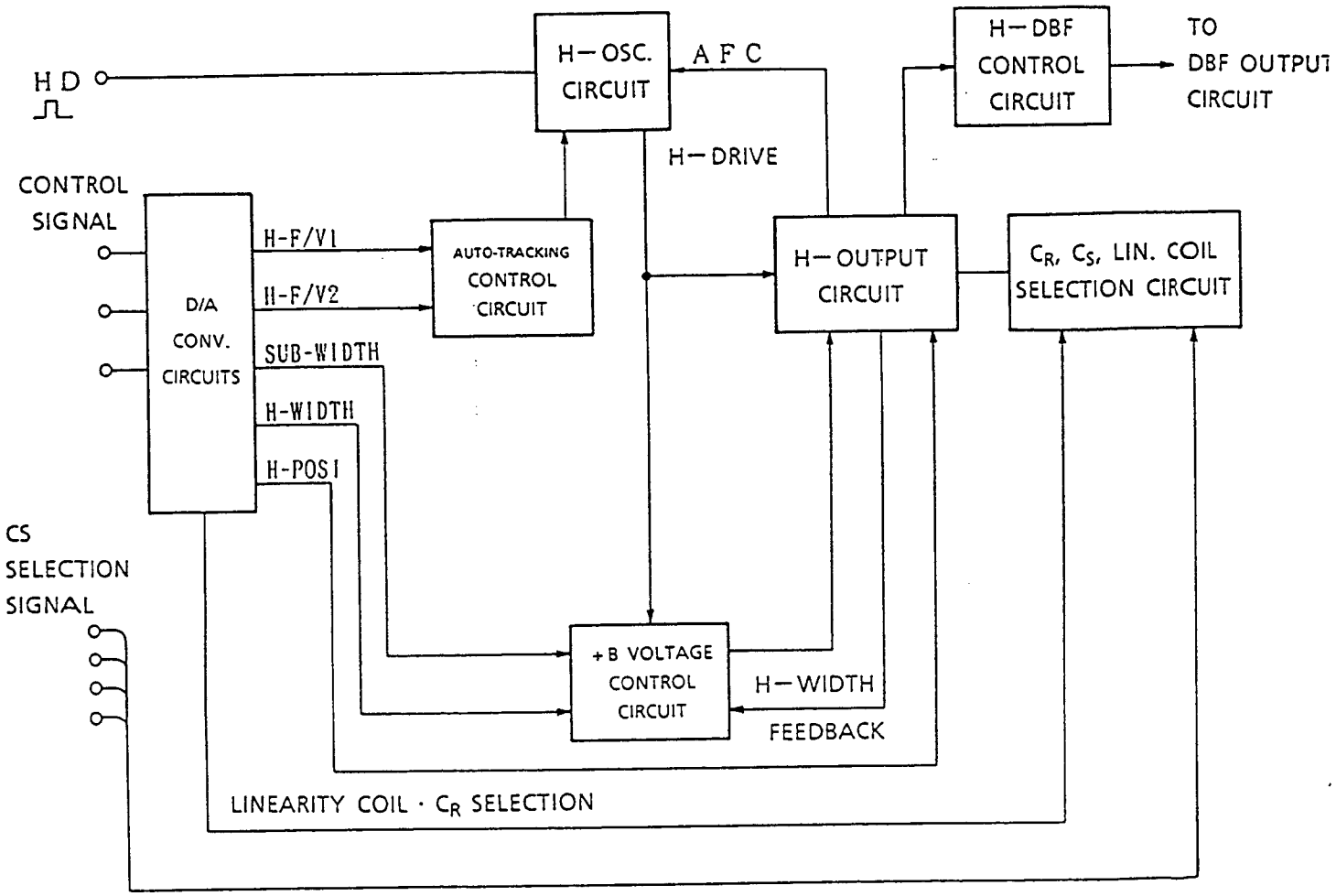


MITSUBISHI ELECTRIC CORPORATION				CAD
				OUTLINE (XC-3725C)
				CP987A012

2. CIRCUIT DESCRIPTION

2.1 HORIZONTAL DEFLECTION CIRCUIT

The horizontal deflection circuit is composed of the following block.



BLOCK DIAGRAM OF HORIZONTAL DEFLECTION CIRCUIT

2.1-1 HORIZONTAL AUTO-TRACKING CONTROL

(1) Operation

The horizontal auto-tracking circuit is composed of IC502, IC503 (1/2), IC504, IC505, Q513, Q514 and peripheral circuits, which function is performed by the control of charge or discharge current of C516 connected to 11pin of IC510. The conversion of frequency to voltage is performed by the micro computer (IC220), D/A converter (IC502) and IC503 (1/2) on the PCB-VIDEO.

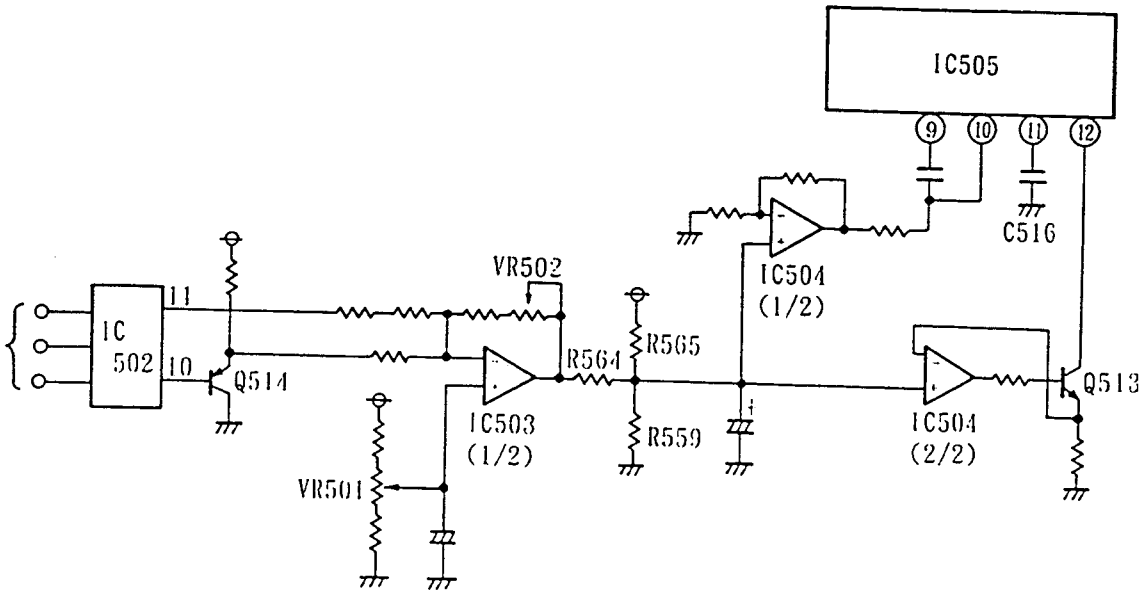
To obtain precise output, two output signals (10 pin and 11 pin) of IC502 (6bits D/A convertor) are used for the adder circuit of IC503 which functions as 8bits resolution.

VR501 and VR502 can compensate the dispersion of components in the auto-tracking circuit.

The output signal level from 7 pin of IC503 (1/2) is divided by R559, R564 and R565, this output voltage is converted to the current by IC504 (2/2) and Q513, which controlls the horizontal oscillation frequency of IC505 as the auto-tracking function.

The duty ratio of horizontal drive pulse of IC505 is also controlled by IC504 (1/2) in accordance with the input frequency.

(2) Circuit



2.1-2 +B VOLTAGE AND HORIZONTAL CONTROL

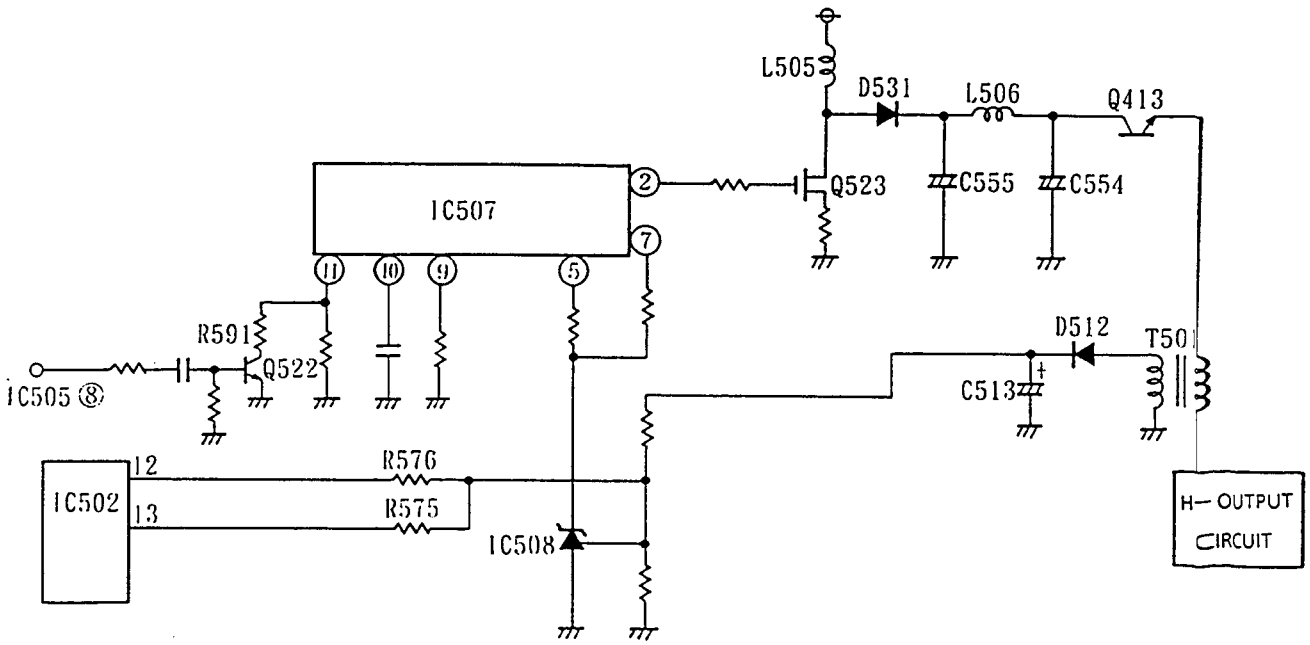
(1) Operation

The power supply line for the horizontal deflection circuit is generated by the switching regulator (boost up convertor) which is synchronized with horizontal oscillation frequency. The oscillation frequency of IC507 is determined by some capacitors and resistors, connected to 9, 10 and 11 pin. To synchronize the oscillation frequency to the horizontal input signal, transistor Q522, connected to 11 pin of IC507, is turned on at the edge of rise time of output pulse from 8 pin of IC505, so the current from 11 pin flows to the ground level via Q522.

The output pulse from 2 pin of IC507 drives boost up convertor which is composed of Q523, L505, D531 and C555. The output from the boost up convertor is provided to Q413 of the side PCC, T501 of the HOT (Horizontal Output Transformer) and the horizontal output circuit.

The output pulse from secondary winding in T501 is rectified by D512 and C513, and is fed to IC507 as the feedback via IC508 of shunt regulator, so the collector pulse of Q5E5 is stabilized to costantly, when change the horizontal frequency. The horizontal width is also stabilized, which is performed by the output from D/A convertor (IC502) to IC508 via R575 and R576.

(2) Circuit

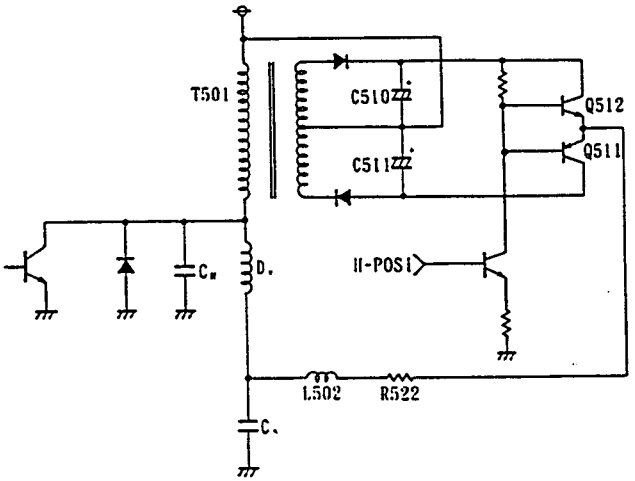


2.1-3 HORIZONTAL POSITION CONTROL

(1) Operation

The control of horizontal raster position is performed to provide the DC bias current to the horizontal deflection coil, the route of bias current is; C510, C511 <----------> Q512, Q511 <----------> R522 <----------> L502 <----------> DY <----------> C510, C511.

(2) Circuit



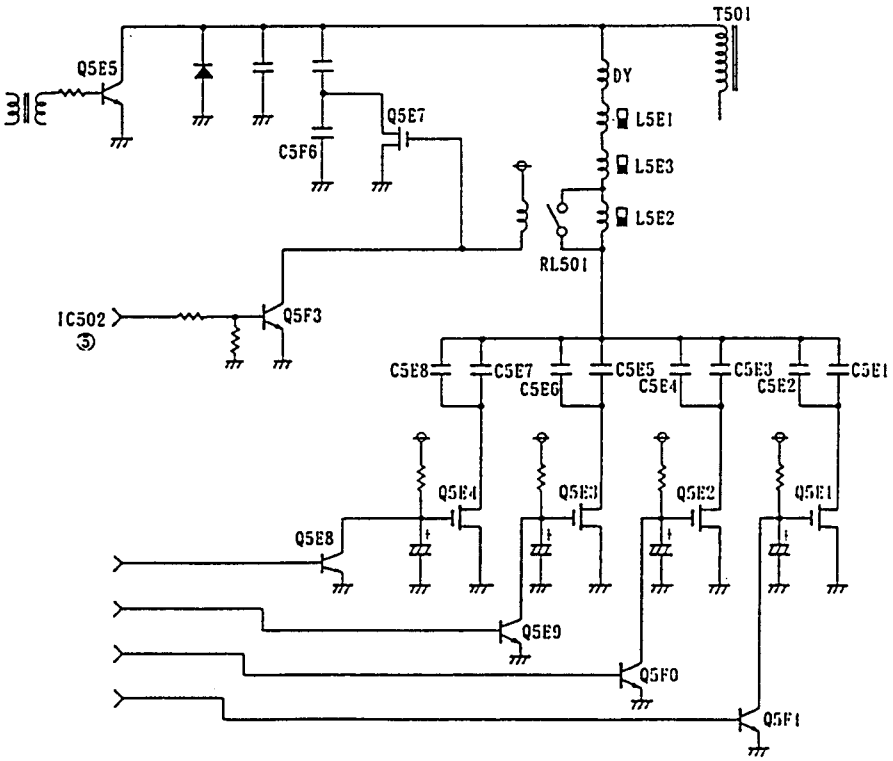
2.1-4 C_S, LINEARITY COIL AND C_R SELECTION

(1) Operation

The horizontal linearity compensation capacitor (C_S) should be changed to obtain the optimum linearity performance in accordance with changing the horizontal frequency as the auto-tracking function.

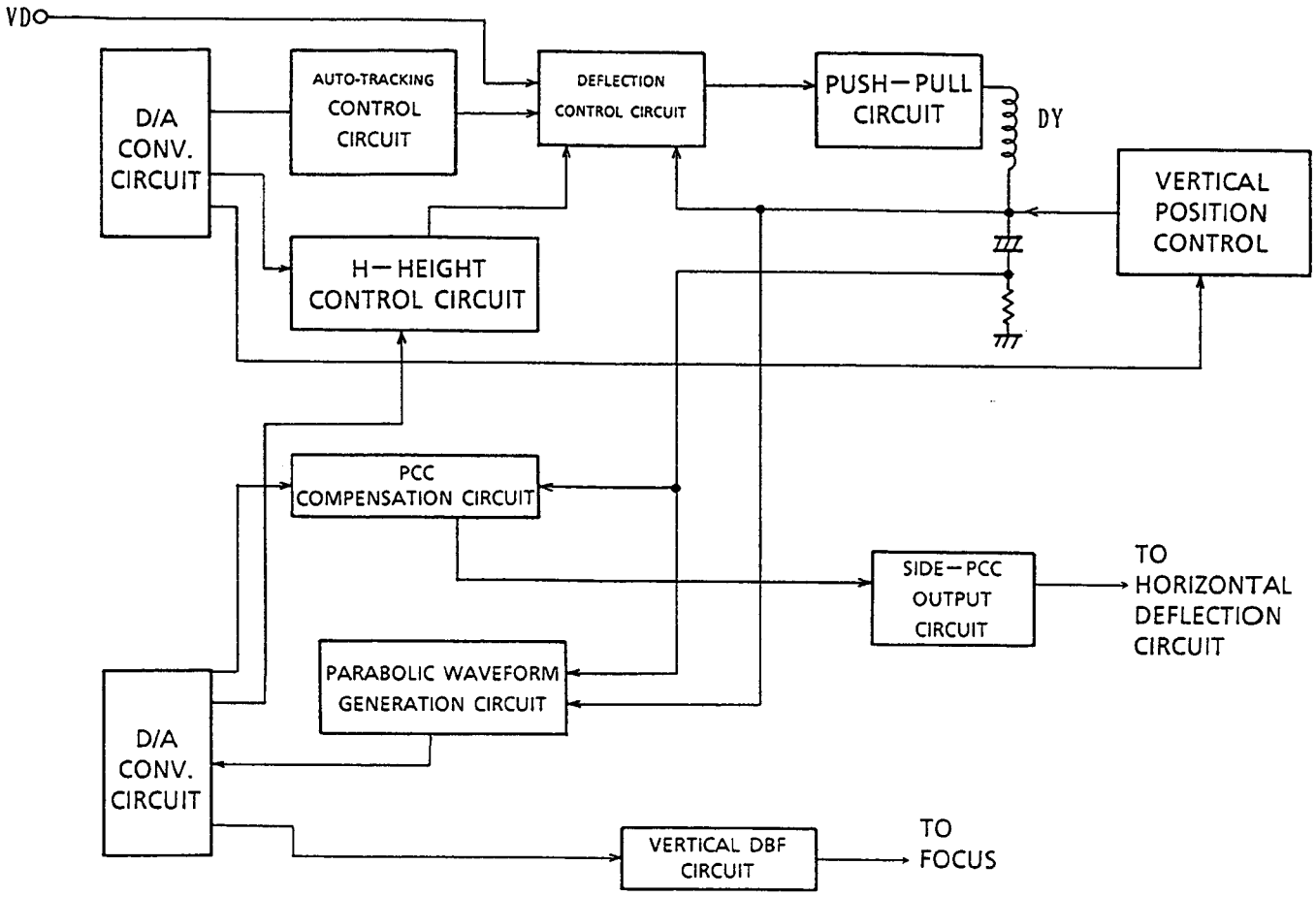
The linearity compensation capacitor is changed to 8 different capacities (C5E1~C5E8) according to the horizontal frequency by transistor and FETs Q5E8~Q5F1. Also, the linearity coil is changed to 3 different values (L5E1~L5E3) by relay RL501.

To reduce the collector pulse of horizontal output transistor Q5E5, the resonance capacitor C_R (C5F5) is changed by the output signal from 5 pin of D/A convertor IC502, when the over scanning condition at the lower frequency range.



2.2 VERTICAL DEFLECTION CIRCUIT

The vertical deflection circuit is composed of the following block.



BLOCK DIAGRAM OF VERTICAL DEFLECTION

2.2-1 VERTICAL AUTO-TRACKING CONTROL

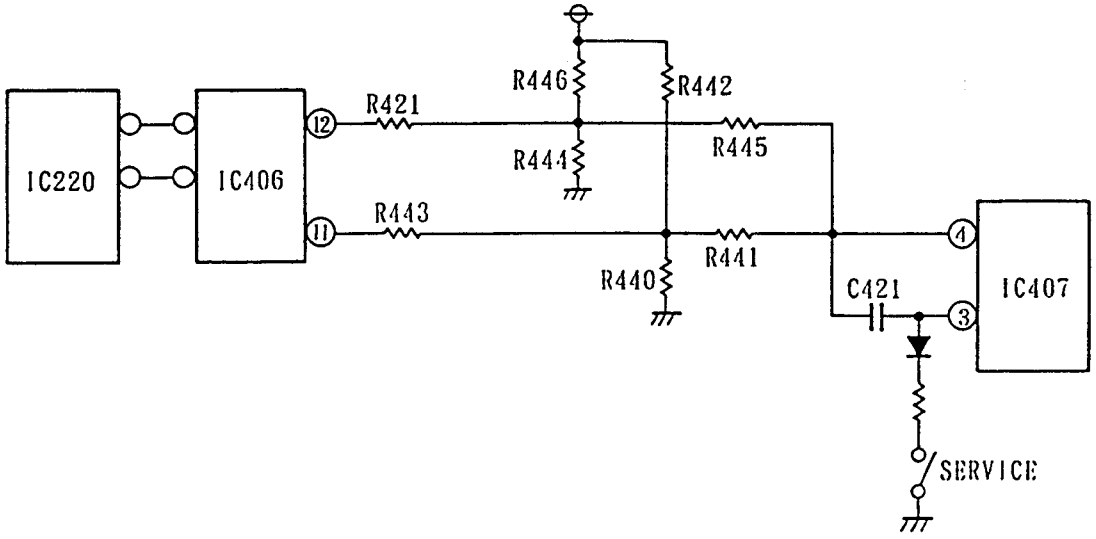
(1) Operation

The vertical auto-tracking function is performed by control of the charge or discharge current of C421, connected to 3 and 4 pin of IC407, which changes vertical free-running frequency.

The vertical input sync. signal is converted from frequency to voltage by IC220 on the PCB-VIDEO which is applied to the D/A convertor IC406. The output from 11 pin of IC406 is provided to C421 through R443 which changes vertical free-running frequency according to the input signal.

Also, V-HOLD control can be changed the output of 12 pin of IC406 which changes voltage of C421 through R421.

(2) Circuit



2.2-2 VERTICAL HEIGHT CONTROL

The vertical raster size is determined by the current of 7 pin of IC407. To obtain the constantly vertical raster size when change the vertical frequency, the output voltage from 10 pin of IC406 is provided to control the base bias of Q404. To control the vertical raster size, the output voltage from 9 pin of IC406 changes the current of 7 pin of IC407.

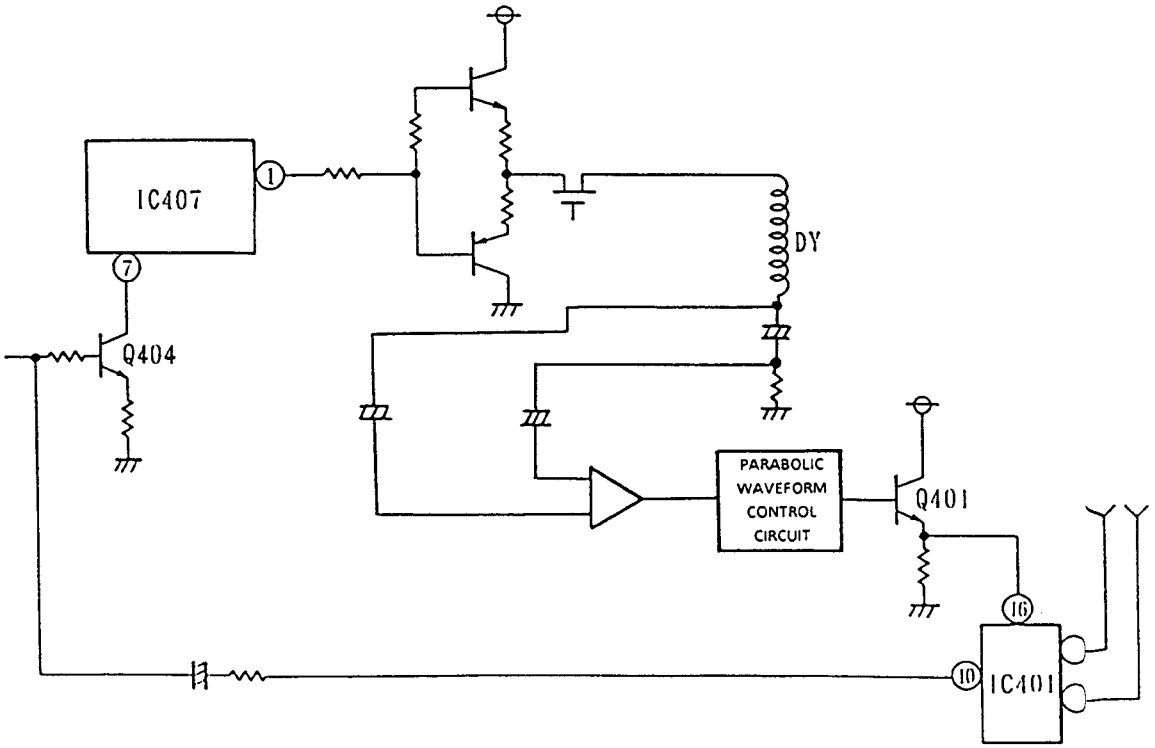
2.2-3 VERTICAL LINEARITY CONTROL

(1) Operation

The base voltage of Q404 is modulated to the parabolic waveform in vertical period for the vertical linearity control. The parabolic waveform is controlled to small amplitude at lower frequency, and is controlled to large amplitude at higher frequency by the micro computer of IC220.

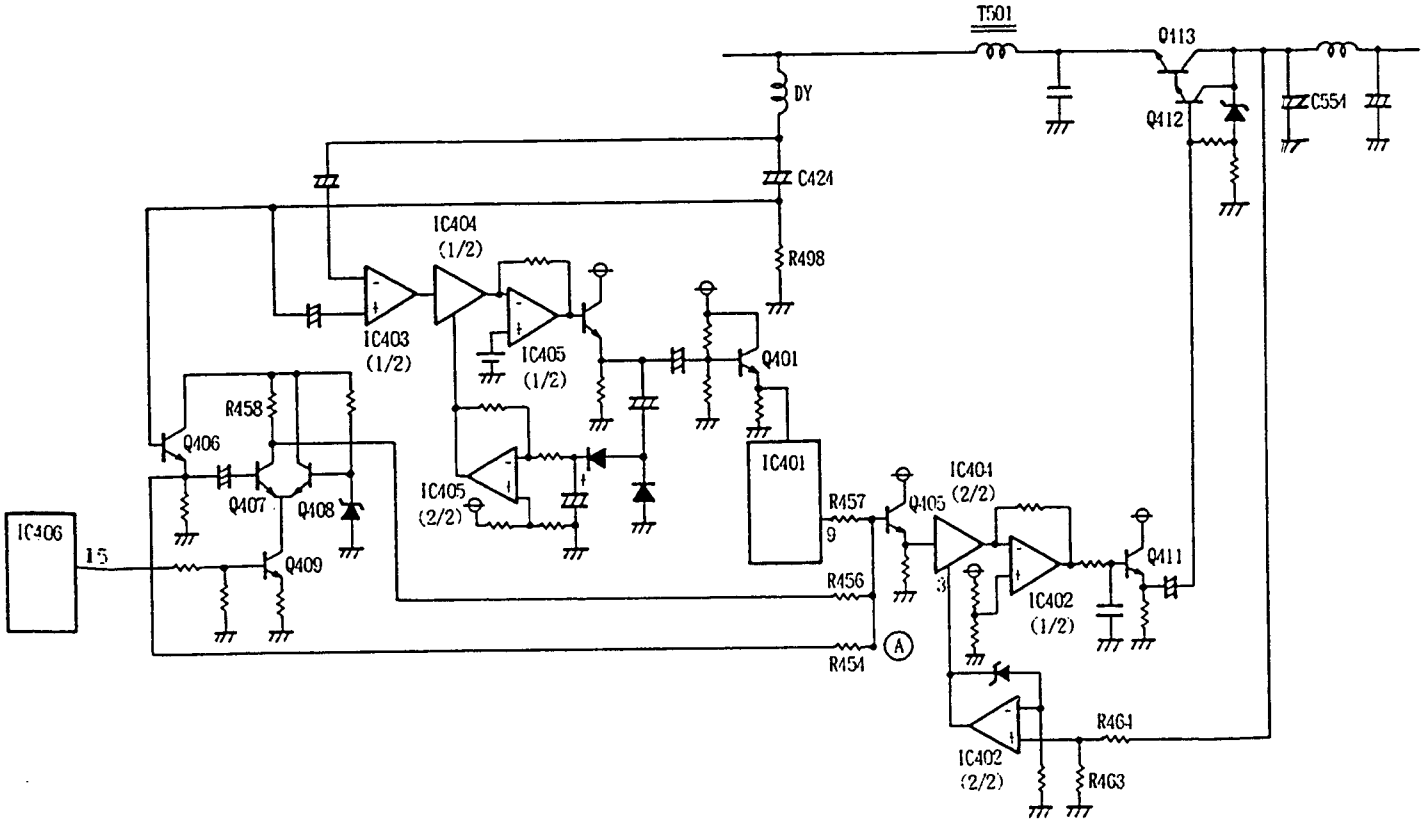
The power supply, connected to the D/A convertor IC401, is modulated to the parabolic waveform, generated from vertical deflection circuit which changes output of D/A convertor IC401 when change the input frequency.

(2) Circuit



2.2-4 SIDE - PCC CONTROL

The SIDE-PCC (Pin Cushion Control) circuit works to compensate the side distortion of screen. The power supply voltage, connected to the horizontal output circuit is modulated to the parabolic waveform in the vertical period. The control of amplitude of parabolic waveform may compensate for the pin cushion or barrel distortion. The control of phase of parabolic waveform is performed to combine the parabolic and sawtooth waveform for the compensation of trapezoidal distortion.
The parabolic waveform is generated from both side of C424, and is provided to the operational amplifier IC403 (1/2). The output from IC403 (1/2) is provided to the amplitude control circuit, composed of IC404 (1/2) and IC405 (1/2) (2/2), which provides constantly amplitude waveform.
The power supply of IC401 is modulated to the parabolic waveform through the emitter follower Q401, and the amplitude of output from 9 pin of IC401 is controlled by the micro computer (IC220).
The sawtooth waveform is generated from the positive side of R498 and is provided to the differential amplifier, composed of Q407, Q408 and Q409 through the emitter follower Q406.
The inverted sawtooth waveform by Q407 is applied to R456, and amplitude of this waveform is determined by the output from 15 pin of IC406 through the gain control transistor Q409 which is cotrolled by the micro computer. The not inverted sawtooth waveform is applied to R454 from the emitter of Q406. The both sawtooth waveforms are combined on the connection point "A" as shown in below and is controlled either inverted or not inverted waveform by output from 15 pin of IC406.
Also, the combined sawtooth wave is appllied to the base of Q405 so that the phase of parabolic waveform is controlled separately. The waveform on marked "A" is connected to an amplifier composed of IC404 (2/2) and IC402 (1/2) through the emitter follower Q405 whose gain is determined by the voltage of C554. The positive side voltage of C554 is fed to the control terminal (3 pin) of IC404 (2/2) through R464, R463 and IC404 (2/2), so that the relation between DC voltage of C554 and amplitude of parabolic waveform is maintained constantly regardless of input signal.
The output from IC402 (1/2) is provided to the series regulator, composed of Q412 and Q413 via the emitter follower Q411 which modulates power supply line of horizontal output circuit.



2.2-5 CANCEL COIL CIRCUIT

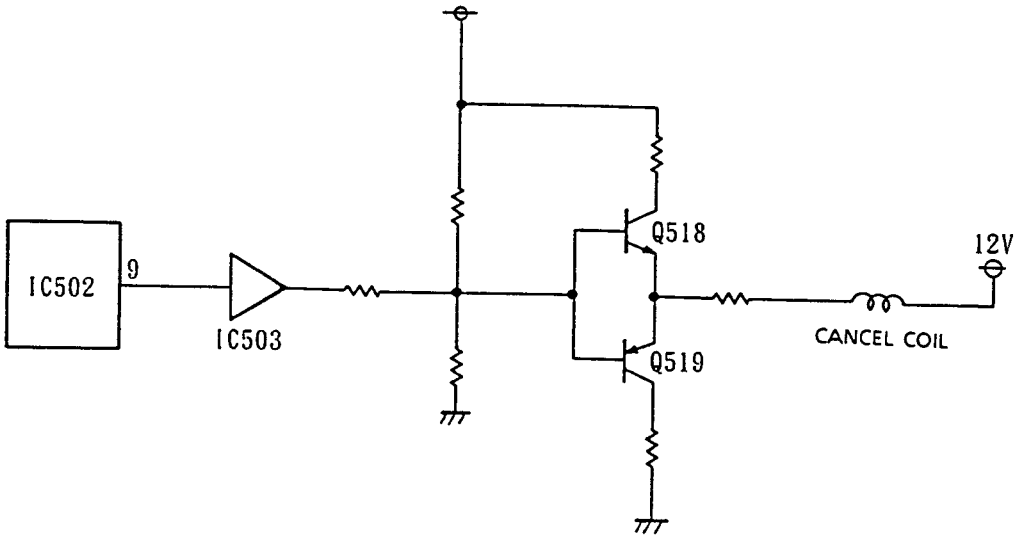
(1) Generally, the large size CRT is very sensitive against the environmental magnetic field such as earth magnetics in nature.

(2) The cancel coil is equipped around the CRT face to compensate a purity performance against the environmental magnetic field.

(3) The cancel current is provided from 12V or 24V DC power supply line to the cancel coil.

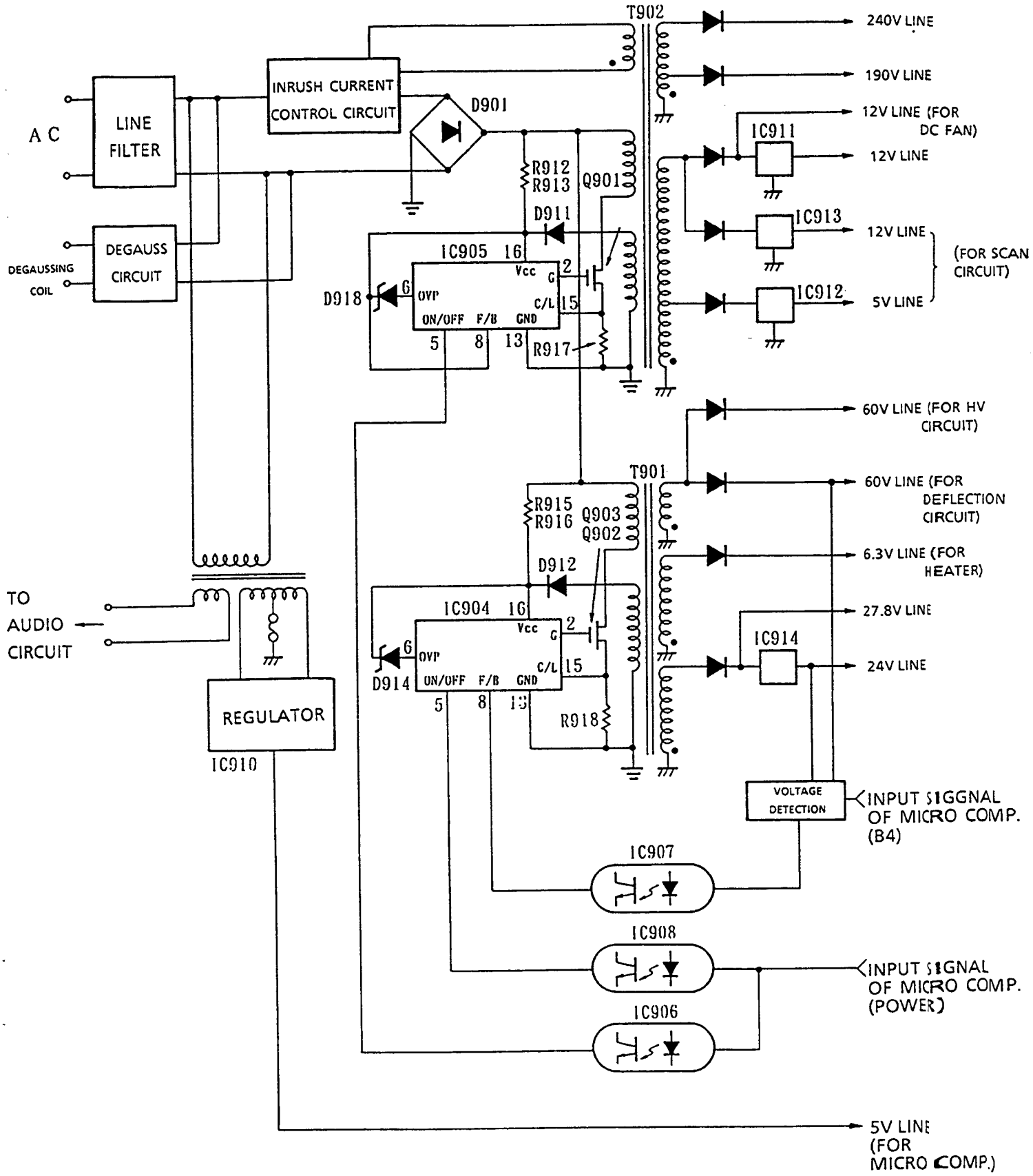
(4) The cancel current is controlled by the output signal from micro computer (IC220), and is converted from digital to analog by D/A convertor (IC502), so the analog level control signal is applied to the cancel coil through the operational amplifier (IC503) and buffer amplifier (Q518 and Q519).

(5) The different directions cancel current is provided to the cancel coil to compensate a north or south direction magnetic field which is performed by changing the output from Q518 and Q519, to 0 ~ 12V or 12 ~ 24V.



2.3 POWER SUPPLY CIRCUIT

The power supply circuit is composed of the following block.



BLOCK DIAGRAM OF POWER SUPPLY CIRCUIT

2.3-1 FEATURES

(1) The power supply circuit can be operated in case either 100 - 120VAC or 200 - 240VAC power line by using the selection switch on the rear panel.

(2) There are two kinds of switch in the power supply circuit on this monitor, one is used for the mechanical switch (main switch) and another is for the wireless remote control switch (sub swifch).

(3) The power supply circuit works as the switched mode operation with flyback method, and the pulse width modulation circuit in the switching regulator oscillates approx. 80KHz switching frequency.

(4) The output lines of power supply are as shown in below with their main loads.

Output Line	Main Load (T902)
240V	Video - Cut-Off Circuit
190V	Video, Deflection Circuit
12V	Video, Deflection, Scan Circuit
	DC Fan Power Supply
5V	Video, Deflection, Scan Circuit
	Main Load (T902)
60V	HV, H-Deflection Circuit
27.8V	V-Deflection Circuit
24V	V-Deflection, HV Circuit
6.3V	CRT Heater

(5) The low frequency transformer in sub power supply circuit provides 5V power suplly line for the micro computer (IC220) and audio sircuit.

(6) The following circuits are controlled by the output signal from micro computer (IC220).
B4 Voltage / High Voltage (HV) / Auto Degauss / Manual Degauss / DC Fan Control / ON/OFF Circuit for Sub-power

2.3-2 PRIMARY RECTIFYING AND SMOOTHING CIRCUIT

(1) The power supply circuit can be operated in case either 100-120VAC or 200-240VAC power supply line by using the selection switch on the rear panel.

(2) The AC input voltage is rectified by the diode bridge D901. The rectified voltage is smoothed by charging C911 and C912.

(3) In case of 100-120VAC line input, the rectify circuit works as a double voltage rectify operation by selecting the voltage selection switch on the rear connector panel to 100-120V position.
In case of 200-240VAC line input, the rectify circuit works as a normal full wave rectify operation by selecting the voltage selection switch on the rear connector panel to 200-240V position.

(4) The thermister, TH901 and TH902 connected to TRIAC IC902 is equipped to suppress the inrush current when turn ON the monitor.

(5) The TRIAC IC902 shunts the thermistor after began to start the oscillation of switching regulator in the power supply circuit.

2.3-3 DEGAUSSING CIRCUIT

(1) This monitor is provided the auto and manual degauss function.

(2) When the sub-switch is turned on after the main switch turned on, the degaussing current flows to RP902 at 100-120VAC line input, and flows to RP901 and R902 at 220-240VAC line input.

(3) The manual degauss circuit is provided to push the degauss switch on the front panel, then the degauss current flows the same way stated in above.

(4) When the manual degauss switch will be used repeatedly, approx. 10 min. will be needed as the cooling time for the posistor.

2.3-4 SWITCHING REGULATOR CIRCUIT

1) PRIMARY CIRCUIT

(1) In case of T901, when the power switch is turned on, the starting voltage is provided to 16 pin of IC904 through R915 and R916. The switching regulator works to start the oscillation when the terminal of 16 pin of IC904 reaches over 16V, then inductive voltage is generated between 7 and 8 pin of T901 which is provided to 16 pin of IC904 through the rectifying and smoothing circuit composed of D912 and C916, as a power supply line.

(2) In case of T902, the starting voltage is provided to 16 pin of IC905 through R912 and R913. The switching regulator works to start the oscillation when the terminal of 16 pin of IC905 reaches over 16V, then inductive voltage is generated between 7 and 8 pin of T902 which is provided to 16 pin of IC905 through the rectitying and smoothing circuit, D911 and C922, as a power supply line.

(3) The output voltage (60V line) for the deflection circuit from 11 pin of T901 is fed to 8 pin of IC904 via the photo coupler IC907 and programable shunt regulator IC909 which work as a feedback circuit.

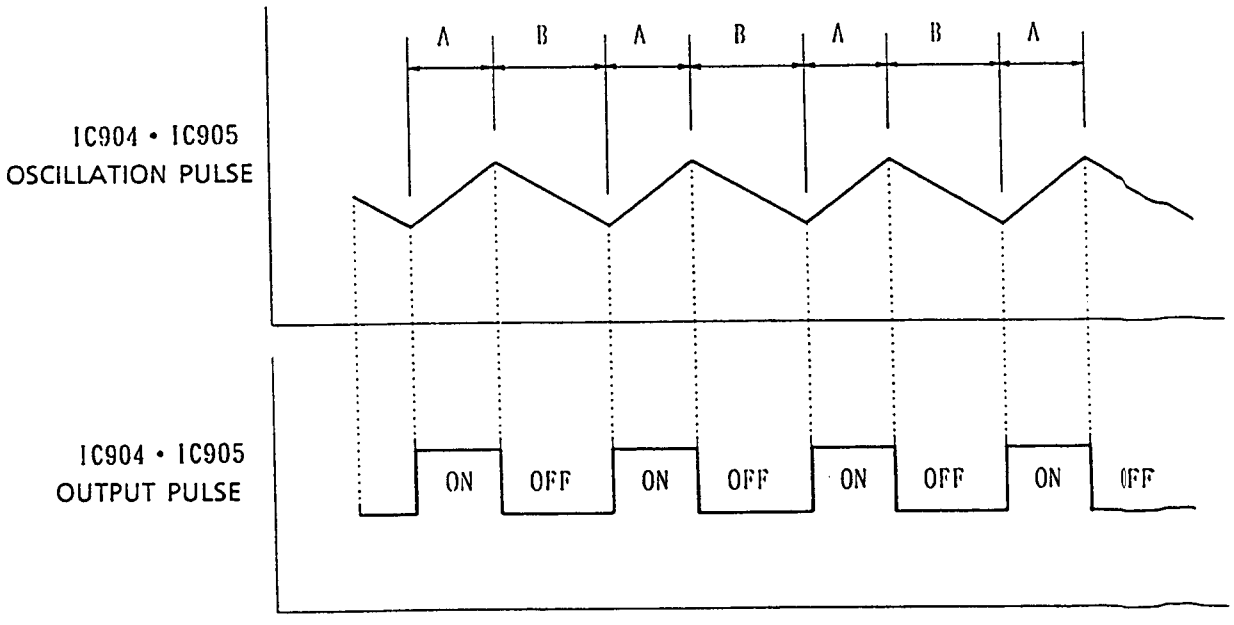
(4) If the output voltage (60V line) from 11 pin of T901 is higher, the cathode current of programable shunt regulator IC909 increases then the current of diode in IC907 increases.
So the collector current of transistor in IC907 increases, and IC904 works to reduce the output voltage (60V line) of 11 pin of T901 by changing the pulse duty of output from 2 pin of IC904 to stabilize the output voltage.

(5) The output voltage (20V) from 7 pin of T902 is fed to 7 and 8 pin of IC905 for the feedback to stabilize the secondary voltage of T902.

(6) IC904 and IC905 oscillate approx. 80KHz, and provide the drive pulse from 2 pin which are applied to FET Q901 for IC905, Q902 and Q903 for IC904, for the switching operation.

(7) The waveform of oscillation pulse (10 pin of IC904 and IC905) is as shown in below.
In this waveform, the period of marked "A" is provided the output drive pulse, and the inclination of waveform is determined by the time constant of, R927 and C921, R945 and C927. The period of marked "B" is not provided the output drive pulse, and the inclination of waveform is determined by the time constant of, R937 and C921, R946 and C927.

(8) The operation of power on / off of sub-switch is performed to flow the current to 5 pin of IC904 and IC905, which is controlled by the signal from micro computer (IC220).



(9) The zener diode D910 and D918 are equipped to work as a protection of over voltage. If the voltage of C916 or C922 is higher, and exceeds the zener voltage (27V) of D910 or D918 at the abnormal condition, the zener diode is turned on, then the voltage is fed to 6 pin of IC904 or IC905 through the zener diode. When the voltage of 6 pin of IC904 or IC905 exceeds 2V, the drive pulse from the switching regulator circuit is stopped as the protection of over voltage. Once protection circuit operates, protection status is held till the power off.

(10) If the current flows to Q902 and Q903, or Q901, is increased at the over load condition, it makes a voltage drop of both the end of R917 or R918. When the voltage of 15 pin of IC904 or IC905 reaches 200mV, internal over current protector works to control the switching current of regulator.

2) SECONDARY RECTIFYING AND SMOOTHING CIRCUIT

(1) The magnetic energy is accumulated in the primary winding of T901 and T902 in the primary circuit during the turn on period of Q902 and Q903, or Q901, which transfers to the secondary and third windings during the turn off period of Q902 and Q903, or Q901.

(2) The induced voltage in the secondary and third winding is generated 11, 16 and 14 pin of T901, or 10, 9, 14 and 15 pin of T902 as an AC pulse during the turn off period of Q902 and Q903, or Q901. These voltages are rectified by D902~D922, D906 (T901), or D923~D929 (T902), and provide to the power supply lines.

2.3-5 HIGH VOLTAGE CIRCUIT

1) HIGH VOLTAGE SUPPLY AND CONTROL CIRCUIT

(1) The principle of high voltage supply circuit is basically same as the horizontal deflection.

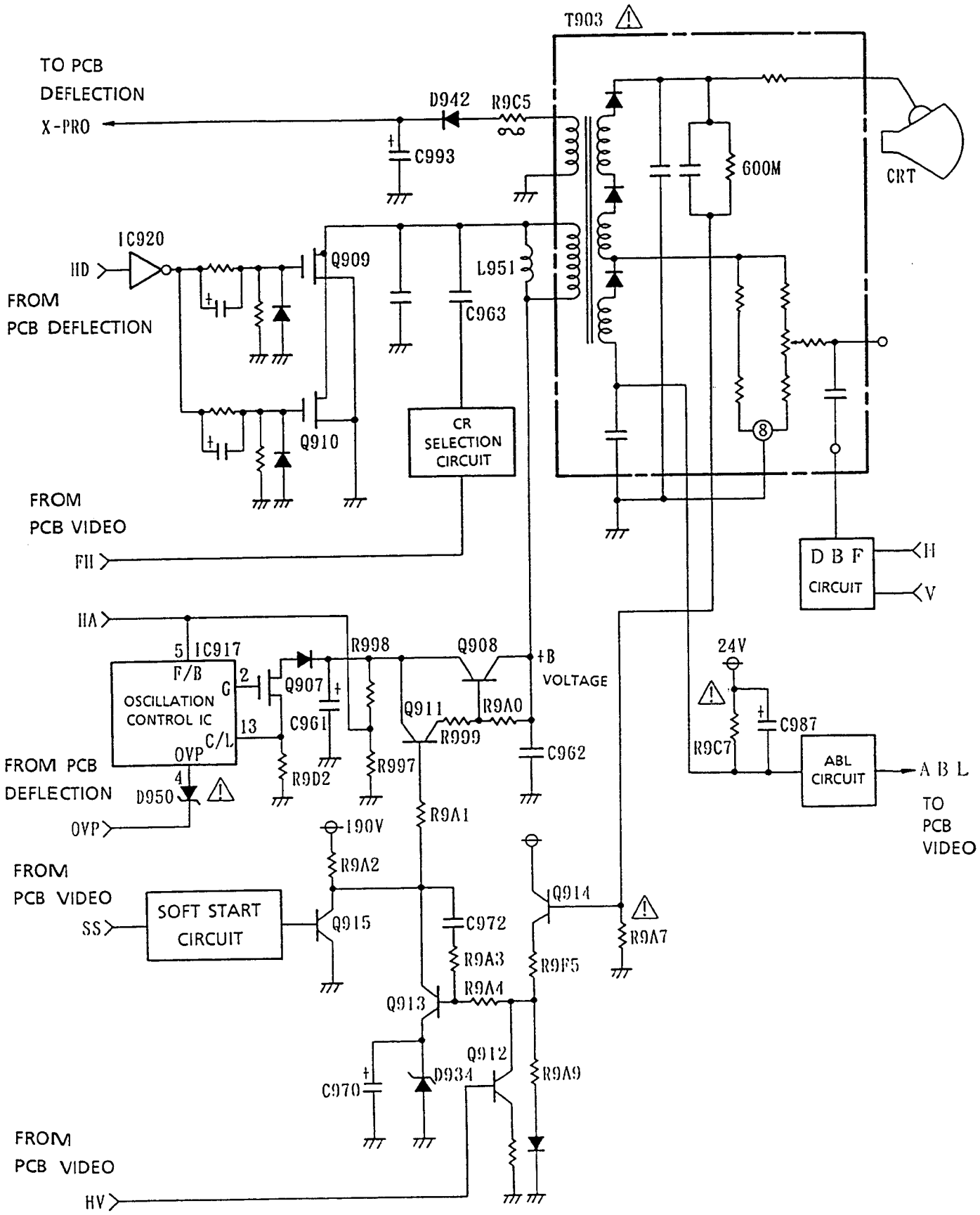
(2) The drive pulse (HA) which is same as the horizontal deflection circuit, drives output FETs Q909 and Q910. The output FETs Q909 and Q910 provide the pulse during turn off period, which is stepped up to approx. 31.5KV by the flyback transformer (T903) for the anode voltage of CRT.

(3) The series regulator, composed of Q908, Q911 and Q913 controlls the power supply line of high voltage circuit. To stabilize the high voltage in wide frequency range, the power supply voltage of high voltage circuit should be controlled by IC917 and Q907, and series regulator composed of Q911 and Q913, which circuits are controlled by the output signal (HA) from D/A convertor.

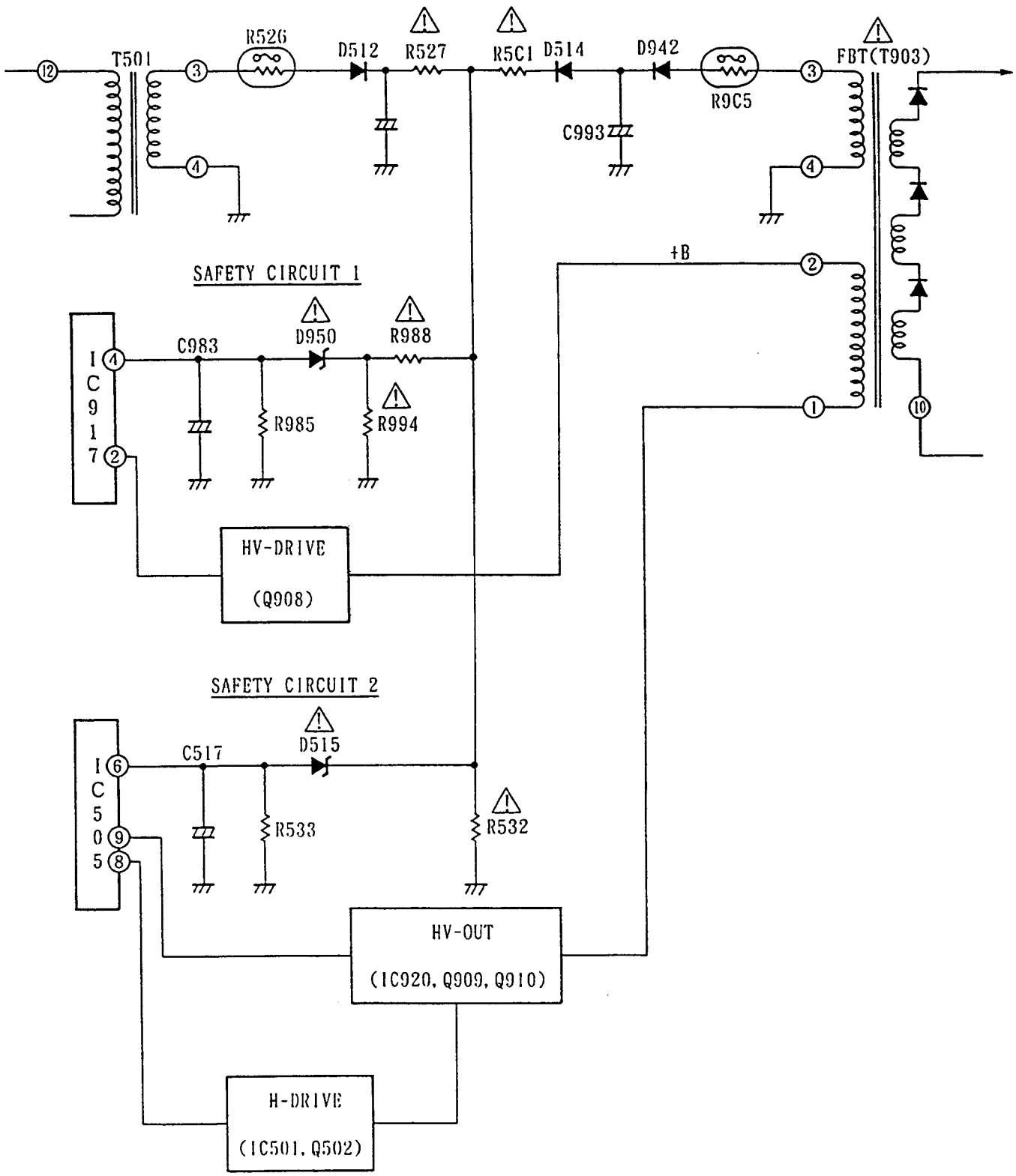
(4) The high voltage is attenuated by the high voltage resistor, approx. 600 mega-ohms, equipped inside of the flyback transformer, and R9A7. This voltage is fed to the base of Q913 through the emitter follower Q914 which works as the error amplifier for the series regulator, and compared with the reference voltage stabilized by D934.

(5) If the high voltage increases, the feedback voltage through the high voltage resistor increases, then the base current of Q913 increases so that the output voltage from FET Q907 decreases, as the result of these operation, the emitter voltage of Q908 decreases. It means that the initial increases of high voltage is corrected.

(6) The high voltage is already set to the pre-arranged value (31.5KV STD) by the output from micro computer (IC220) via Q912.



BLOCK DIAGRAM OF HIGH VOLTAGE CIRCUIT



BLOCK DIAGRAM OF HV PROTECTION CIRCUIT

2) HIGH VOLTAGE SAFETY CIRCUIT

- CAUTION -
Safety circuit described below are equipped to prevent abnormal increase of the high voltage that may cause a X-ray radiation of harmful level.
No modification should be applied to the high voltage supply and safety circuits.

The safety circuit works as the over voltage protector for the high voltage.

(1) The high voltage protection circuit is equipped the over voltage and X-ray protection circuits.
(2) Excessive high voltage is detected through the third winding in FBT and is fed to the X-ray and over voltage protection circuits through D942 and C993.
(3) The detected voltage by the high voltage circuit is fed to 6 pin of IC505 through 8 pin of connector "CP-3", D514 and D515, for the X-ray protection.
(4) Also, the detected voltage is fed to 4 pin of IC917 via connector "CP-3", "CD-3",. "CP-23" and "CP-24", D514 and D950 for the over voltage protection.
(5) If the high voltage reaches approx. 37KV at abnormal condition, the detected voltage by the third winding of FBT exceeds the zener voltage (33V) of D950 and D515, then either over voltage protector of IC917 or X-ray protector of IC505 operates to stop the oscillation for the high voltage circuit. Once hold down circuit operates, hold down status is held till the power off.
(6) If the current flows to chopper (Q907) increases at abnormal condition, the voltage, deteced by R9D2 is fed to 13 pin of IC907. When the voltage of 13 pin of IC917 exceeds approx. 200mV,the current limit circuit in IC917 operates to limit the current of Q907.

2.3-6 ABL CIRCUIT

(1) The ABL (Automatic Beam Current Limitter) circuit is for limiting the beam current of CRT.
(2) The brightness of CRT is determined by the beam current. The beam current is provided from 24V line of 16 pin of T901, and is detected by R9F2 and R9C7.
(3) If the beam current exceeds the limit value, the voltage drop of R9F2 and R9C7 increases, so the base voltage of Q233 decreases, so that the voltage of 13 pin of IC222, which controlls the gain of pre-amplifiers, is reduced.
It means that these circuts suppress the output of pre-amplifiers for limiting the brightness of CRT.

2.3-7 DC FAN CONTROL CIRCUIT

(1) This monitor is equipped two electrical fans which are located on the bottom of monitor and lower side of deflection yoke for cooling.
(2) The power supply for the DC fan is provided from 12VDC output 0f IC911 through R982.
(3) The current flows to DC fan is converted to voltage by electrical potentiometer (IC915) which is compared with reference voltage of R975 ~ R977 by the comparator (IC916).
(4) The output from IC915 is in the proper value, and IC916 provides unstable pulse at normal operation
(5) If DC fan is stopped at abnormal condition, the output from IC915 exceeds pre-arranged value and then the output voltage from IC916 maintains high level DC signal. So the high level DC signal is fed to the micro computer (IC220) as the alarm signal, so that the micro computer provides the power off signal as the protection function to the power supply circuit after approx. 40sec.
(6) If the connector "CP-6" is disconnected, the output voltage from IC916 also maintains high level DC signal, so that the micro computer provides the power off signal to the power supply circuit.
Once protection ciruit operates, the protection status is held after the problem is solved.

2.4 VIDEO CIRCUIT

2.4-1 INPUT VIDEO SIGNAL

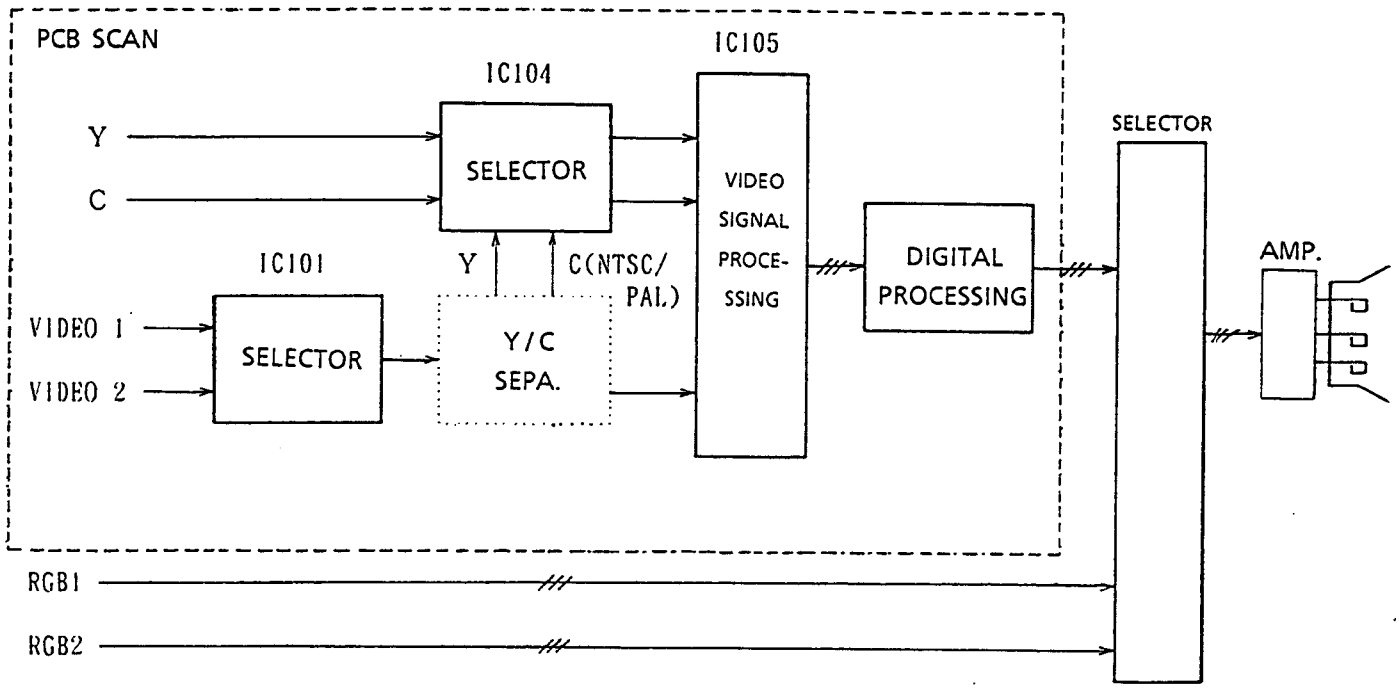
The video circuit is provided two channels Video signal (NTSC, PAL and SECAM), and two channels Analog RGB video signal. The one channel of Video signal is available to input the Y/C separated video signal (S-VHS).

2.4-2 SELECTION OF INPUT SIGNAL

(1) The selection of VIDEO 1 or VIDEO 2 signal is performed by IC101, and selection of Y/C separated video signal (S-VHS) or normal video signal is performed by IC104, then they are applied to the video processor IC105.

(2) The video processor IC105 provides separated RGB primary video signal to the digital processing circuit for the double scanning function.

(3) The selection of one RGB signal from VIDEO or RGB 1 or RGB 2 is performed by the relay RL200, RL201, RL202, and RL203, and is provided to the CRT circuits.



BLOCK DIAGRAM OF INPUT SELECTION

2.4-3 VIDEO SIGNAL SELECTION

1) SOURCE SELECTION CIRCUIT

(1) The selection of VIDEO 1 or VIDEO 2, and AUDIO signal is performed by IC101 which is controlled by the output signal S_1 and S_2 from micro computer (IC220), and the operation of IC101 is as shown in below.

(2) The selection of S-VHS or composite signal in VIDEO 1 channel is performed by the selection switch S122 on the rear panel.

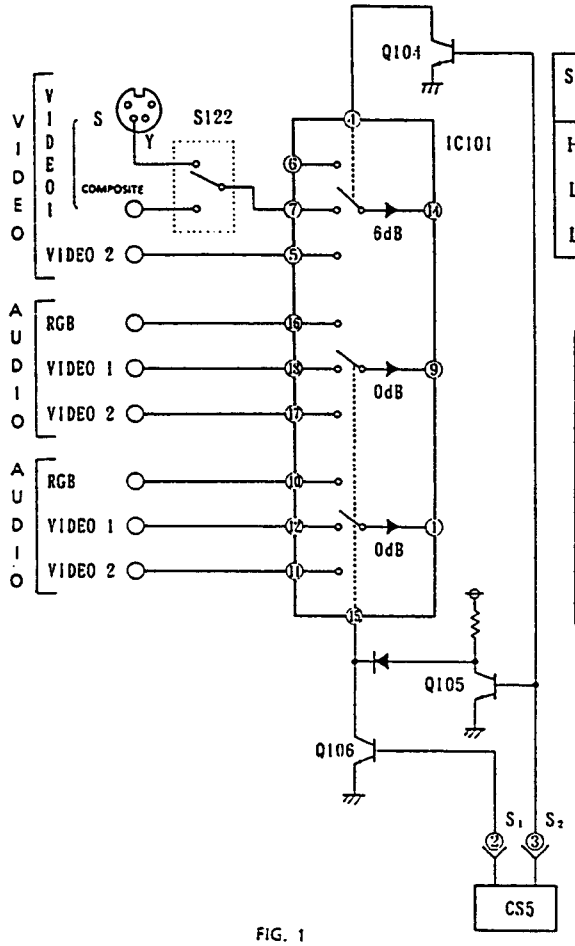


FIG. 1

OPERATION OF IC101

S_1 S_2	④	⑮	⑭ OUTPUT	①. ⑨ OUTPUT
H L	H	L	—	RGB
L H	L	OPEN	VIDEO 2	VIDEO 2
L L	OPEN	H	VIDEO 1	VIDEO 1

INPUT SIGNAL	SW 2	SW 3	IC104 ⑨	IC104 ⑩	INPUT TERMINAL
PAL	H	M	L	L	⑫ ① ⑮ ②
SECAM	M	M	L	L	↓ ↓
NTSC	L	M	L	H	⑭ ⑤
S入力	L	M	*	H	⑪ ④
B/W	M/L	L	L	L	⑫⑮①②

* ···"HIGH" level at S—VHS selection of VIDEO 1

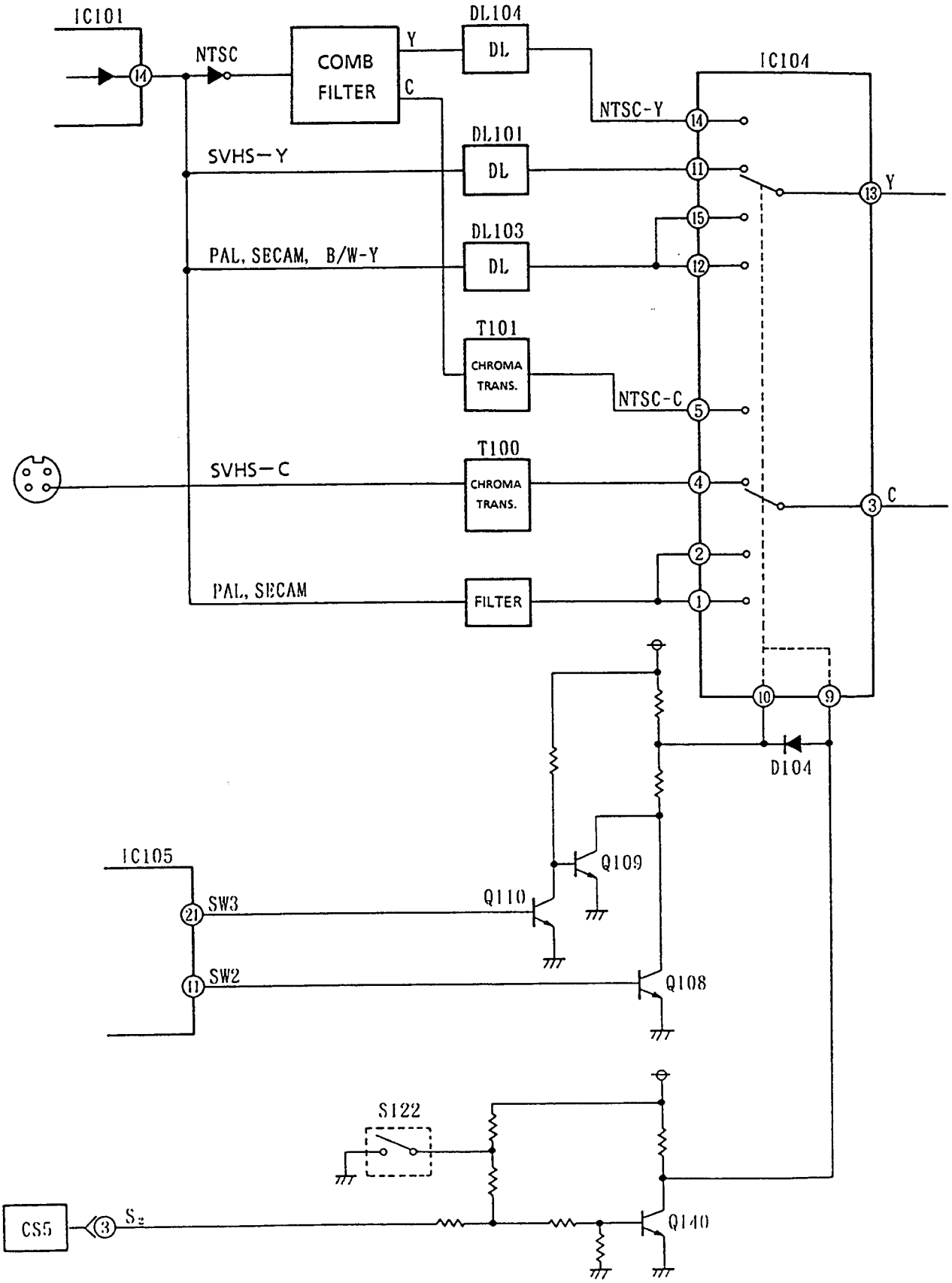
2) NTSC / S-VHS / PAL / SECAM SELECTION CIRCUIT

(1) The discrimination of video signal (NTSC, S-VHS, PAL, SECAM or B/W) is perdormed by IC105, which provides the selection signal of SW1 (10 pin), SW2 (11 pin) and SW3 (21 pin).

(2) In case of NTSC signal, 10 pin of IC104 becomes "High" level via Q108, Q109 and Q110, in case of the other video signals, 10 pin of IC104 becomes "Low" level.

(3) The discrimination of NTSC or S-VHS signal is determined by the output signal S_2 from the micro computer (IC220) and selection switch S122. In case of S-VHS signal, the output signal S_2 of IC220 and S122 should be provided "Low" level signal to Q140 then 9 pin and 10 pin of IC104 are applied "High" level signal from the collector side of Q140, which performes the selection of Y/C separation circuit for S-VHS signal.

SELECTION CIRCUIT OF NTSC, S—VHS, PAL AND SECAM



3) Y/C SEPARATION CIRCUIT

(1) In case of PAL signal, the filter composed of R115, C121, C119, L104 and R1S0 are available.

(2) In case of SECAM signal, the filter LC103 is available.

(3) In case of NTSC signal, the CCD 1H delay line IC103 uses four times clock of chrominance subcarrier for the comb filter function, IC102 works to separate the brightness and chrominance signal from the composite signal by using the normal video signal and 1H delayed video signal. The brightness signal is provided from 16 pin, and chrominance signal is provided from 4 pin of IC102.

4) DOUBLE SCANNING CIRCUIT

4)-1 DOUBLE SPEED CONVERTOR CIRCUIT

(1) The primary RGB signal from IC105 is applied to the double scanning circuit.

(2) There are three video processing circuits in the PCB-VIDEO for RGB inputs which have identical digital processing circuit configuration. The analog level video signals from IC105 are changed to 8bits digital datas by the A/D convertor, IC121, IC141 and IC161.

(3) The converted RGB 8bits digital datas are written by 16MHz clock signal to the first line memory of IC123, IC143 and IC163 in the timing frame of $\overline{WRST}$.

(4) The memorized datas in the first line memory are read by 32MHz clock signal in the timing frame of $\overline{RRST}$. It means that read speed of data from the line memory is two times of write speed, which functions two times relation between input and output. The following explanations are operated by 32 MHz clock signal.

4)-2 OPERATION CIRCUIT

(1) The 8bits digital RGB signals from the first line memory are applied to the second line memory composed of IC126, IC146 and IC166, and the adder composed of IC129, IC127, IC149, IC147, IC169 and IC167.

(2) The second line memory composed of IC126, IC146, and IC166 works as the one line delayed line.

(3) The current line data from first line memory and the previous line data from one line delayed line memory (second line memory) are combined in the adder IC then datas are provided to IC131, IC151 and IC171, which operates to be rounded off one bit data from the lowest position bit datas to shift the datas, so that the operation of 1/2 is completed.

(4) After the above operations, the RGB signal datas are converted from digital to analog signal by the D/A convertor composed of IC130, IC150 and IC170, which are applied to the PCB-VIDEO with 1Vp-p signal level.

4)-3 TIMING SIGNAL GENERATION CIRCUIT

(1) The following timing signals are used for the double scanning circuit and are synchronized with 32MHz clock signal.

$\overline{WCK}$ (16MHz): Basic clock and write clock signal which are used for before double scanning conversion.

$\overline{RCK}$ (32MHz): Basic clock, write and read clock signal which are used for after double scanning conversion.
$\overline{GCK}$, $\overline{BCK}$

H (15.75KHz): Horizontal sync. signal which is used for before double scanning conversion(for AFC)

2H (31.5KHz): Horizontal sync. signal which is used for after double scanning conversion(for AFC).

$\overline{WRST}$: Write address reset signal for the line memory which is used for before double scanning conversion.

$\overline{RRST}$: Write and read address reset signal for the line memory which are used for after double scanning conversion.

(2) The output signal of horizontal sync. signal (Ex. Hsyn) from IC105 which is synchronized with input sync. signal, is provided to 2 pin of IC181 for the horizontal AFC.

(3) The clock signal of 32MHz, which is synchronized with horizontal sync. signal, is generated from 13 pin of IC181.

(4) The clock signal of 32MHz, provided from 13 pin of IC181 is amplified to TTL level by Q127 and is provided to IC182 of buffer IC to work as the basic clock.

(5) The clock signal of 32MHz is changed to 16MHz clock signal by the frequency demultiplier (IC184).

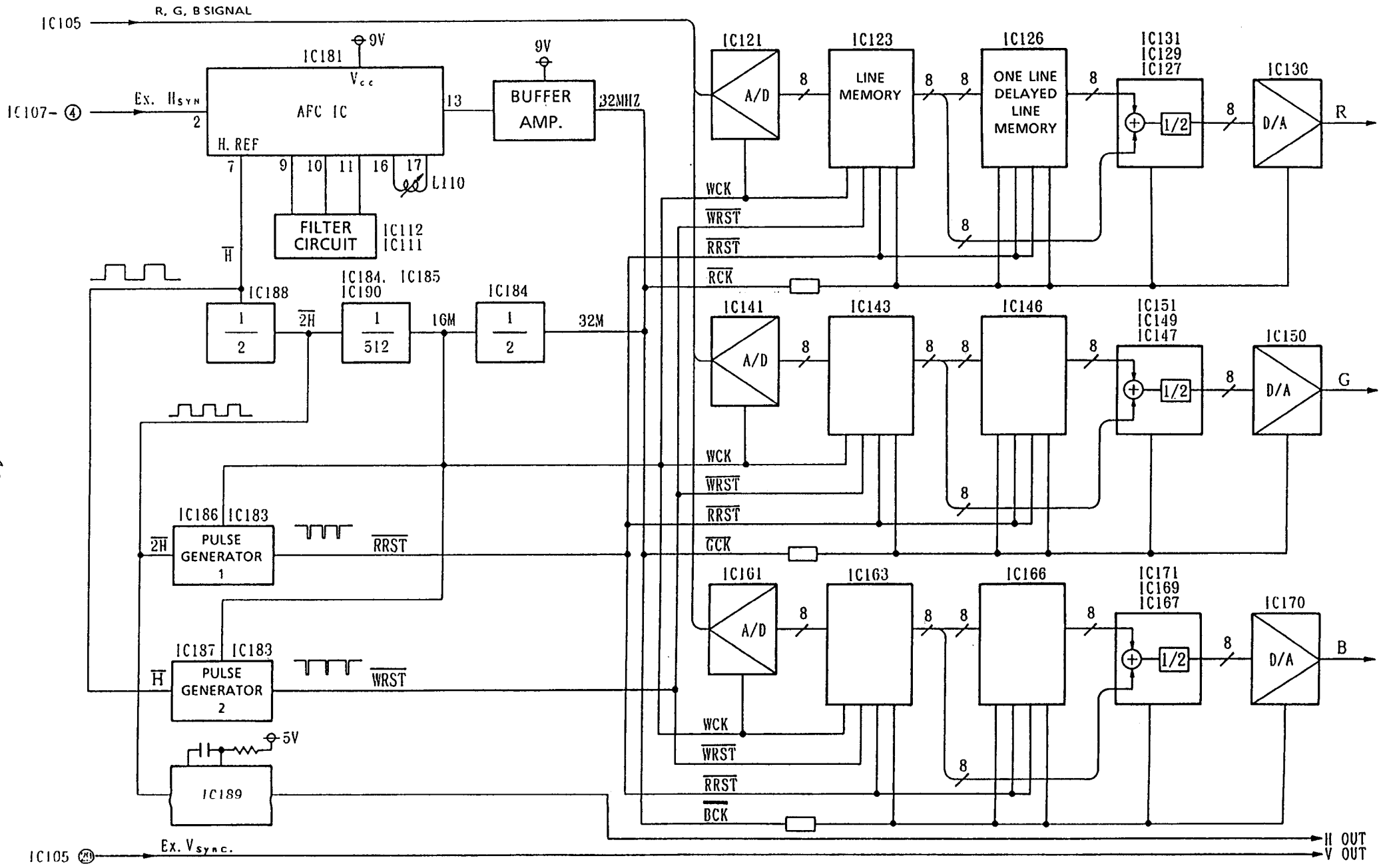
(6) The basic clock signal of 16MHz is changed to 1/512 frequency signal by the frequency demultiplier composed of IC184, IC185 and IC190 which provides the horizontal sync. signal of double frequency (2H) and is changed to 1/2 frequency for the horizontal sync. signal (H) by IC188.

(7) The horizontal sync. signal, H, is provided to 7 pin of IC181, and is compared with the horizontal sync. signal, Ex. Hsyn, provided from 2 pin.

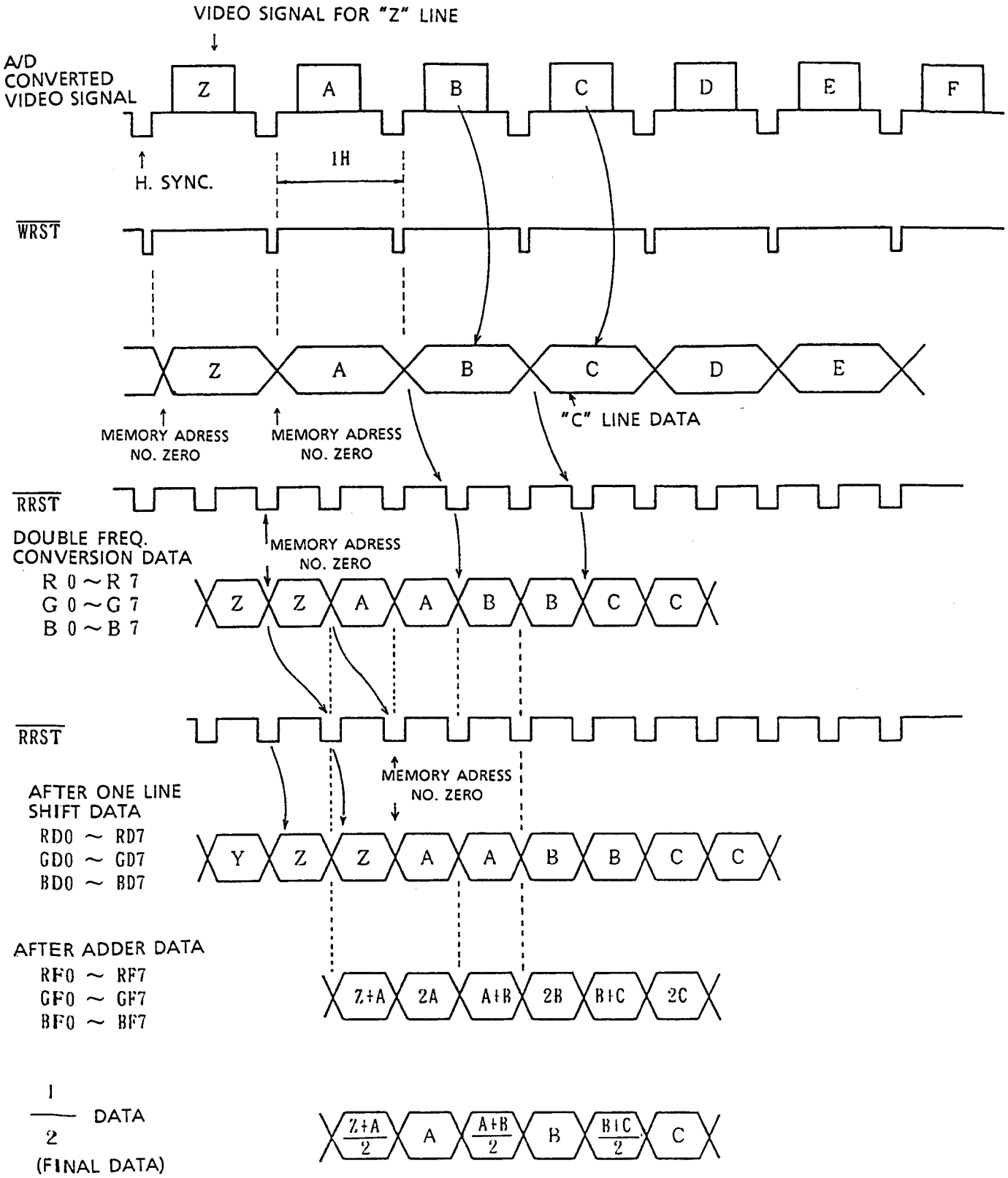
(8) The synchronization of H signal and Ex. Hsyn signal is performed by adjusting the coil (L110), connected to IC181.

(9) The write address reset signal ($\overline{WRST}$) of the line memory for double scanning conversion is made by changing from 50% duty horizontal sync. signal (H) to one pulse width signal (H) in IC187 and IC183.

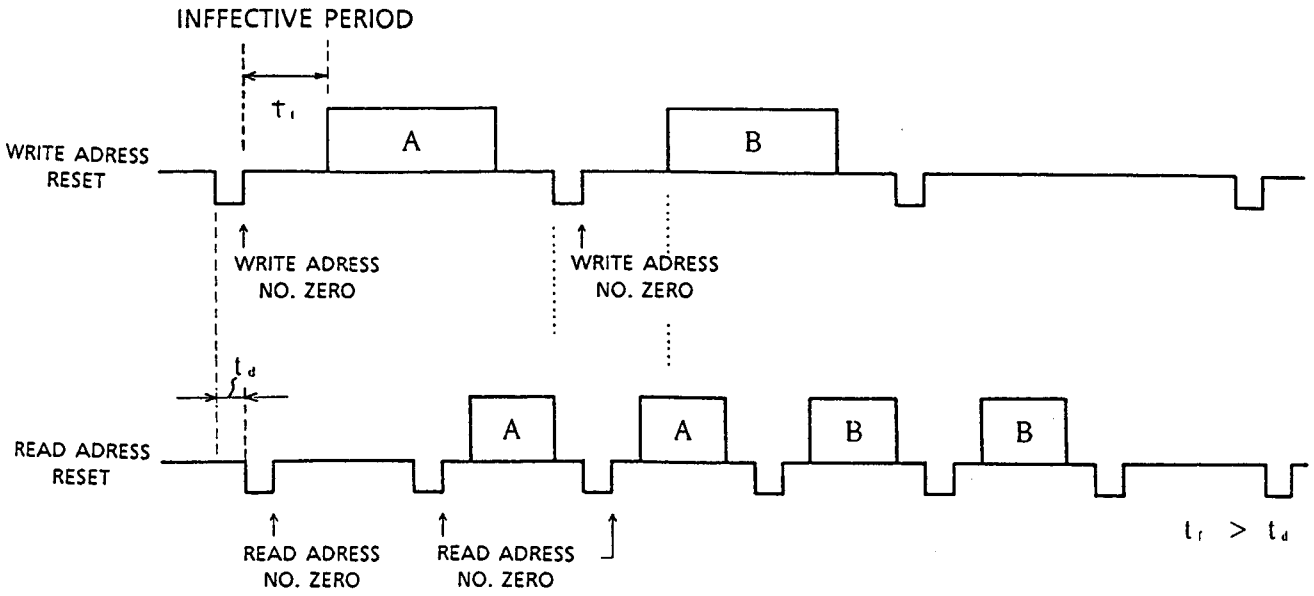
(10) The read address reset signal of the line memory for double scanning conversion ,and write and read address reset signal ($\overline{RRST}$) of one line delayed line memory is made by changing from 50% duty horizontal sync. signal (2H) to one pulse width signal (2H) for IC186 and IC183.

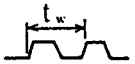


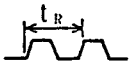
BLOCK DIAGRAM OF DOUBLE SCANNING CIRCUIT



TIMING CHART OF DOUBLE SCANNING CONVERSION



WRITE CLOCK t_w 

READ CLOCK t_R 

$2t_R = t_w$

2.5 ANALOG RGB SIGNAL

(1) The analog RGB input signal is provided from BNC or D-SUB connector on the rear panel.

(2) Normally, the termination of input signal is set to 75ohms impedance position by the selection switch on the rear panel. When some monitors are displayed with loop through connection, the selection switch should be set to high impedance position. The lower side of BNC connectors on the rear panel are used for the loop through connection, and the final connection monitor should be selected to 75ohms impedance position.

(3) The input signal of RGB 1 is provided to the relays RL202 and RL203 through the coupling capacitors C200, C201, C204, C205, C208, C209, and the buffers Q201, Q204, Q207, and the emitter followers Q200, Q203, Q206.

(4) The input signal of RGB 2 is provided to the relays RL200 and RL201 through the coupling capacitors C214 ~ C219, and the buffers Q212, Q214, Q218 and the emitter followers Q211, Q213, Q215.

2.6 INPUT SIGNAL SELECTION

The source selection signal is provided from IC220, and is applied to the relay drive transistor Q234 and Q235, then relay RL200 ~ RL203 select the following signal sources.

	VIDEO	RGB 1	RGB 2
Output of Q234	L	L	H
Output of Q235	H	L	H

2.7 CHARACTER DISPLAY

(1) The character signal on the screen is provided from IC213 by RGB primary signals which are applied to the analog switch IC214.

(2) The selection signal of character or video signal is applied to 9, 10, 11 pin of IC214 from IC213. The character signal is selected when the selection signal is "High" level, and the video signal is selected at "Low" level.

(3) To display the character on screen, the high speed selection signal (high and low signal) is applied to IC214, so that an overlapped display image is provided.

(4) After that, the overlapped character and video signal is applied from IC214 to relay RL204 ~ RL206.

2.8 AMPLIFIER CIRCUIT

(1) The RGB signals selected by RL200 ~ RL203 are applied to the video amplifier IC222 through the coupling capacitor C2R1, C2R2, C2G1, C2G2, C2B1 and C2B2.

(2) The video processing IC, IC222 has the function of video signal control (3, 7, 11 pin; Drive control, 15 pin; Brightness control, 13 pin; Contrast control), and controlled signals are provided from 20, 24 and 28.

(3) The video clamp pulse from clamp pulse generation circuit which is composed of IC204, IC200, IC205, IC209 and Q221, is fed to 14 pin of IC222 to clamp the black level of video signal.

(4) The video signals from IC222 are provided to the relay RL204 ~ RL206 and analog switch IC214. When display the overlapped image of video and character signals on the screen, the analog switch circuit is selected by the relays. When display only video signals, the video signals are provided to the main amplifiers circuit throughout the relays.

(5) The selection of character display or normal video signal is determined by the selection signal from the micro computer (IC220) to relay driver Q238.

	Normal video	Character display
Output of Q238	L	H

(6) The video signals from relay RL204 ~ RL206 are applied to the main-amplifiers IC2R1, IC2G1 and IC2B1 which provide the cathode drive signals of CRT (approx. 80 ~ 90Vp-p at RGB input signal, approx. 130Vp-p at Video input signal).

(7) The amplified cathode drive signals are provided to the cathode of CRT after clamping the cathode level by the clamp circuit on the PCB-CRT.

(8) The clamp circuit provides DC voltage control function for the CRT cathode. When the collector currents of Q6R6, Q6G6 and Q6B6 become 0 (zero), the cathode voltage of D6R3, D6G3 and D6b3 become 190V, so that the maximum voltage of CRT cathode drive signals are maintained to 190V. When the collector currents of Q6R6, Q6G6 and Q6B6 are approx. 0.7mA, the cathode voltage of D6R3, D6G3 and D6B3 become 220V, so that the maximum voltage of CRT cathode drive signals are maintained to 220V.

2.9 SYNC. SIGNAL CIRCUIT

2.9-1 Input sync. signal

This monitor is available to input the following sync. signals;

(1) Horizontal / Vertical separate sync. signal: 0.3 ~ 4Vp-p and TTL, Positive / Negative polarity

(2) Horizontal / Vertical composite sync. signal: 0.3 ~ 4Vp-p and TTL, Positive / Negative polarity

(3) Sync. on green sync. signal: 0.3V (only sync. signal), Negative polarity

2.9-2 Video signal

(1) The video signal, selected by IC101, is applied to 33 pin of IC105 for the sync. signal separation, so the horizontal sync. signal is provided from 39 pin, and the vertical sync. signal is provided from 29 pin of IC105.

(2) The horizontal sync. signal is converted to the double frequency signal of 2H by conversion circuit.

(3) The horizontal sync. signal is applied to 2 and 4 pin of IC210 through the waveform shaping circuit, coupling capacitor C225 and buffer Q220.

(4) The vertical sync. signal is applied to 11 pin and 15 pin of IC210 through the coupling capacitor C224 and buffer Q219.

2.9-3 RGB 1 sync. signal

(1) The sync. signal for RGB 1 is available to input the Horizontal / Vertical separate sync. signal, Horizontal / Vertical composite sync. signal and sync. on green signal.

(2) The sync. signal is provided from the BNC connector on the rear panel and is selectable for the termination of "75ohms" or "High" position by the selection switch.

(3) The Horizontal separate sync. signal or Horizontal / Vertical composite sync. signal is applied to 1 pin of IC210 through the coupling capacitor C212, buffer Q209 and S205.

(4) The Vertical sync. signal is applied to 12 pin of IC210 through the coupling capacitor C213 and buffer Q210.

(5) The sync. on green signal is applied to 1 pin of IC210 through the coupling capacitor C204, C205, buffer Q204, emitter follower Q203 and S205.

2.9-4 RGB 2 sync. signal

(1) The sync. signal for RGB 2 is available to input the Horizontal / Vertical separate sync. signal, Horizontal / Vertical composite sync. signal.

(2) The selection of termination of "75ohms" or "High" is available by selection of pin assignment in the connector.

(3) The Horizontal separate sync. signal or Horizontal / Vertical composite sync. signal is applied to 5 pin of IC210 through the coupling capacitors C222, C223 and buffer Q217.

(4) The Vertical sync. signal is applied to 14 pin of IC210 through the coupling capacitors C220, C221 and buffer Q216.

2.9-5 Selection of Sync. Signal

(1) The selection of sync. signal is performed by the analog switch IC210.

(2) The selectioin of input signal is performed by the micro computer IC220, the output signal from 8 and 9 pin of IC220 is applied to 9 and 10 pin of IC210 through Q237 and Q238 for the signal selection.

(3) The output signal from IC210 for the input selection is as follows.

IC210	Video	RGB 1	RGB 2
9 pin	H	L	L
10 pin	X	L	H

H: 12V
L: 0V
X: H or L

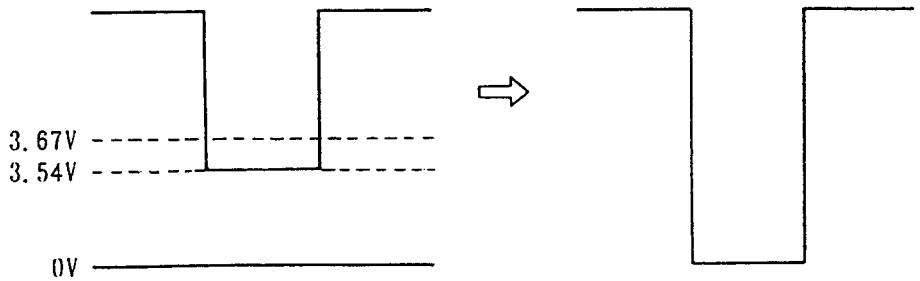
2.9-6 Sync. Signal Detection

(1) The sync. signal which is selected by the analog switch IC210, is applied to 4 and 9 pin of IC204 and IC207 (comparator), through C246 and C264.

(2) The sync. signal of 9 pin of IC204 and IC207 is compared with the reference voltage of 10pin (3.54V). In case of the voltage of sync. signal (9 pin) is lower than 10 pin, the output from 7 pin provides "Low" level, so that Q228 and Q229 work to increase the voltage of 9 pin. In case of the voltage of sync. signal is same as 10 pin or higher than 10 pin, the output from 7 pin provide "High" level, so that Q228 and Q229 are turned to off, which decreases the voltage of 9 pin.

(3) The above operations are repeated to clamp the minimum sync. signal level to 3.54V.

(4) The sync. signal which is maintained to 3.54V, is compared with the voltage of 5 pin (3.67V) of IC204 and IC207. In case of the voltage of sync. signal is lower than 5 pin, the output signal from 12 pin provides "Low" level. In case of the voltage of sync. signal is higher than 5 pin, the output signal from 12 pin provides "Low" level. These circuits work as the waveform shapping circuit.



WAVEFORM OF WAVEFORM SHAPING CIRCUIT

2.9-7 Sync. Separation

(1) The sync. signal is fixed to the negative polarity by IC200 and IC202. The Horizontal separate sync. signal or Horizontal / Vertical composite sync. signal is applied to the sync. signal separation circuit composed of IC208 and IC211.

(2) In case of Horizontal / Vertical composite sync. signal, 11 pin of IC206 provides horizontal sync. signal, 5 pin of IC211 provides vertical sync. signal.

(3) In case of Horizontal / Vertical separate sync. signal, 11 pin of IC206 provides horizontal sync. signal, 5 pin of IC211 provides "High" level signal. The vertical sync. signal is applied to 2 pin of IC203 of AND logic circuit, then 1 pin of IC203 is maintained "High" level by the signal from 5 pin of IC211, so that 3 pin of IC203 provides the vertical sync. signal.

(4) In case of Horizontal / Vertical composite sync. signal or sync. on green signal, the output signal from 3 pin of IC202 is maintained "High" level, then the separated vertical sync. signal is provided to 1 pin of IC203 from 5 pin of IC211, so that 3 pin of IC203 provides separated vertical sync. signal.

(5) The separated horizontal sync. signal is applied to 1 pin of IC216 for the horizontal phase control which provides the sync. signal from 5 pin, after decided the horizontal phase and pulse duty.

(6) After above operations, the horizontal sync. signal is provided from 5 pin of IC216, the vertical sync. signal is provided from 3 pin of IC203, as a drive pulse for the deflection ciruit.

3.0 DBF CIRCUIT

(1) The horizontal and vertical parabolic waveforms generated from deflection circuit, are amplified and inverted by the amplifier composed of Q632 and Q633, and are provided to the flyback transformer through the buffer Q634.

(2) To compensate the difference of phase of input and output, the circuit of C638, R650, R634, R636 work as an AC feedback, and the circuit of R643, R642, R641, R633, R632, C635 work as a DC feedback.

3.1 MICRO COMPUTER AND PERIPHERAL CIRCUIT

3.1-1 Function of Micro Computer

1) This monitor is equipped 8bits micro computer which has the following functions;

(1) Power on / off control

(2) Discrimination of Horizontal / Vertical frequency

(3) C_S , C_R , etc. selection signal control

(4) Source and mode selection control

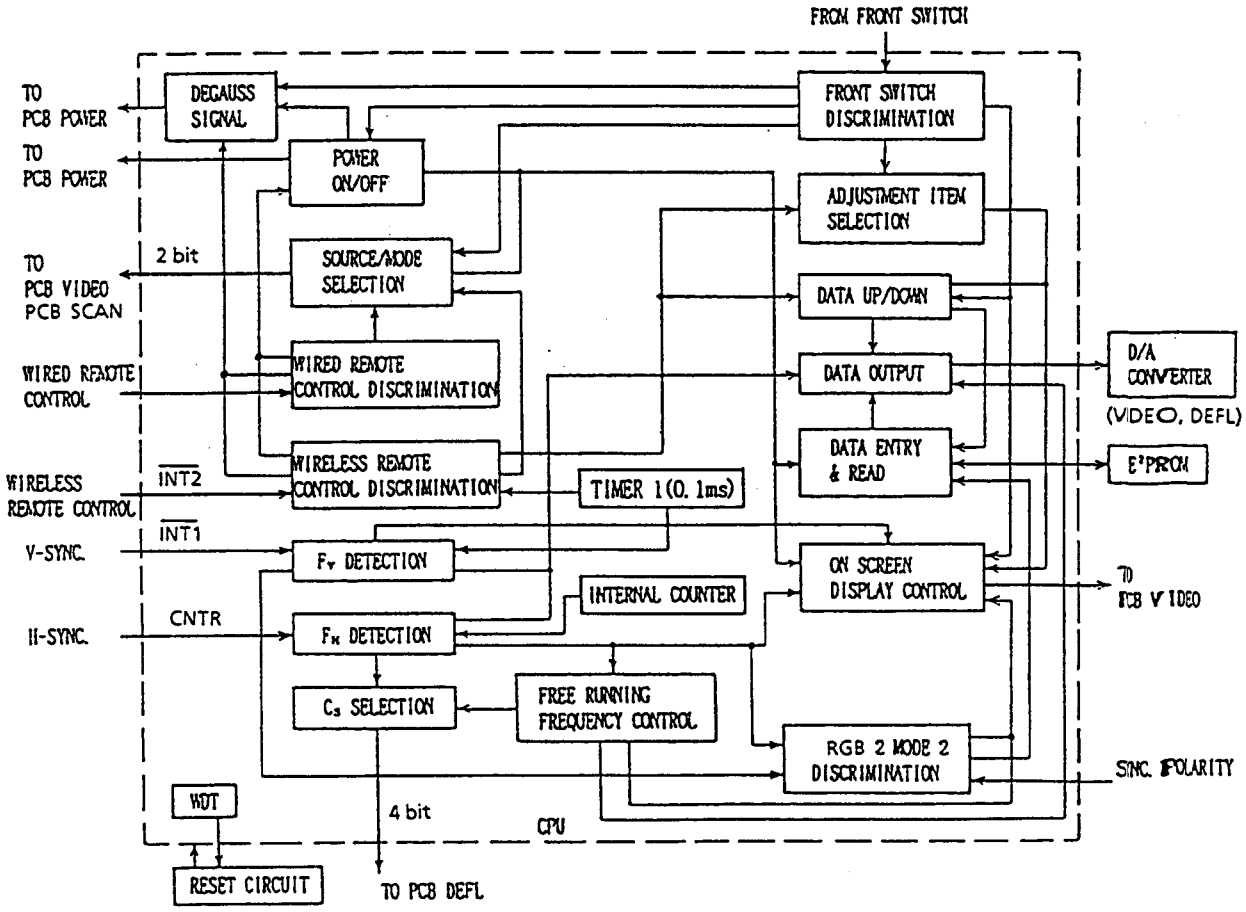
(5) Discrimination of wireless remote control signal

(6) D/A convertor control

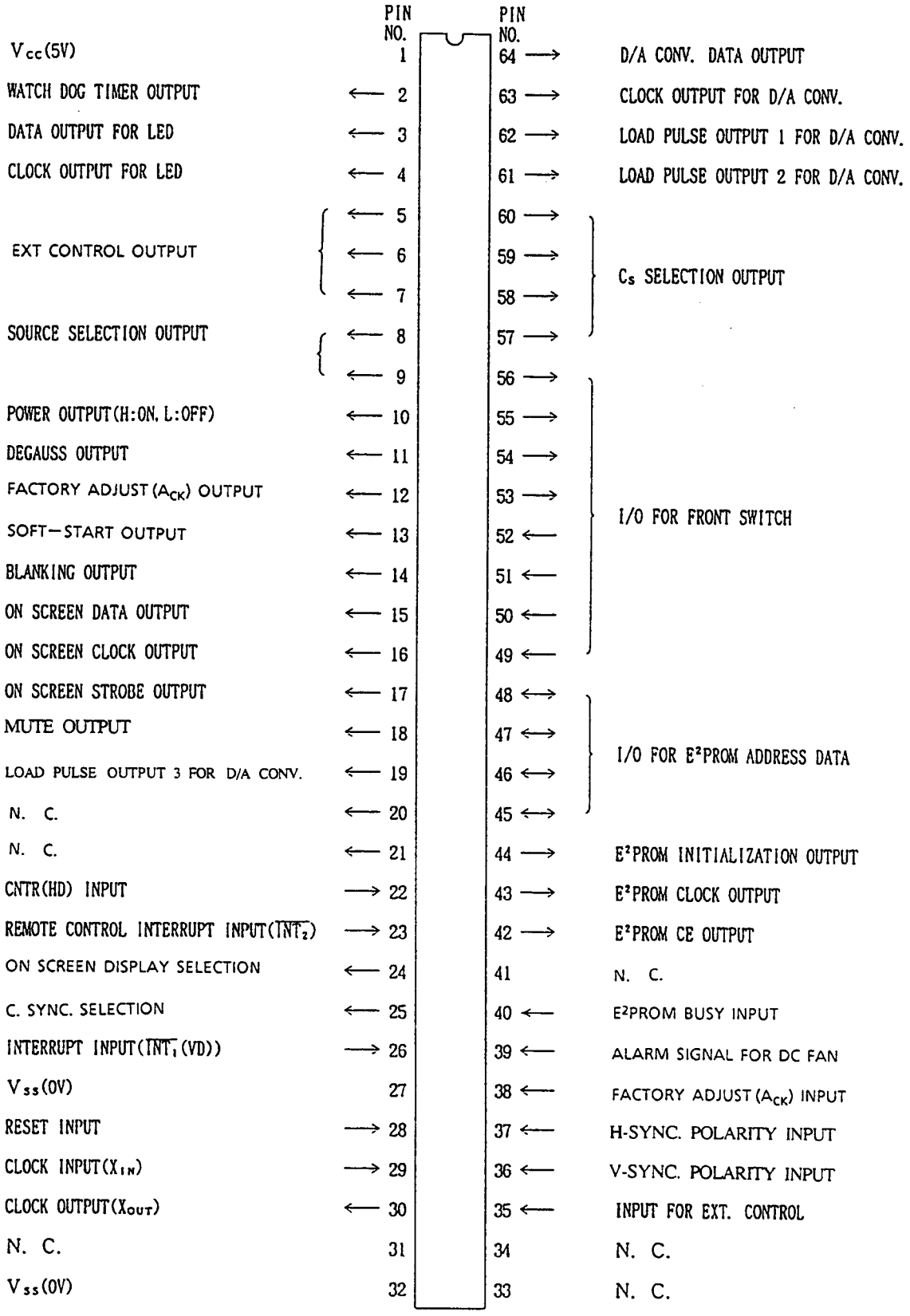
(7) Read and write operation to E^2PROM

(8) On screen display control

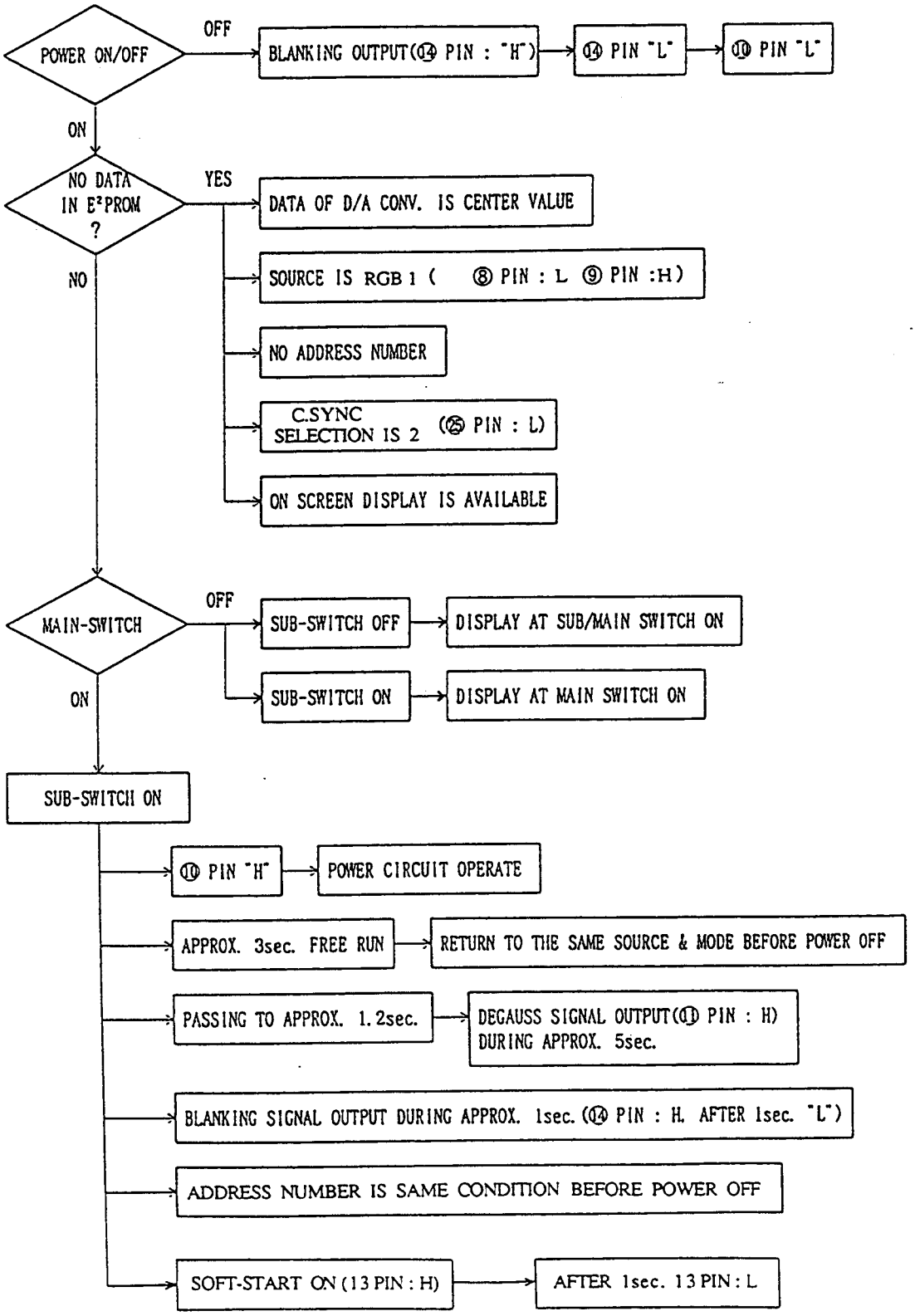
2) Internal Block Diagram of Micro Computer



3) PIN ASSIGNMENT & I/O OF MPU



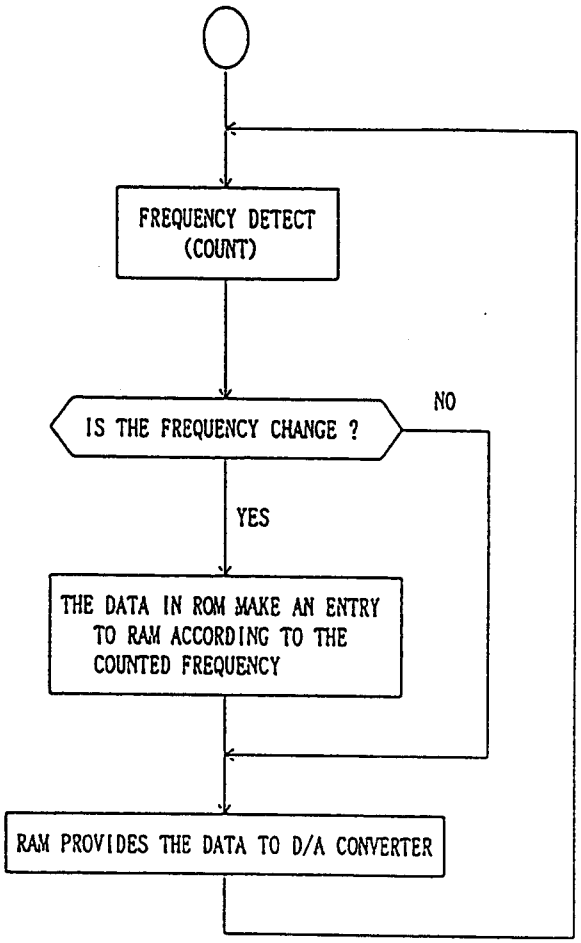
3.1-2 Flow Chart of Power On / Off



3.1-3 Horizontal / Vertical Frequency Detection and Selection Signal

1) Flow Chart of Frequency Detection

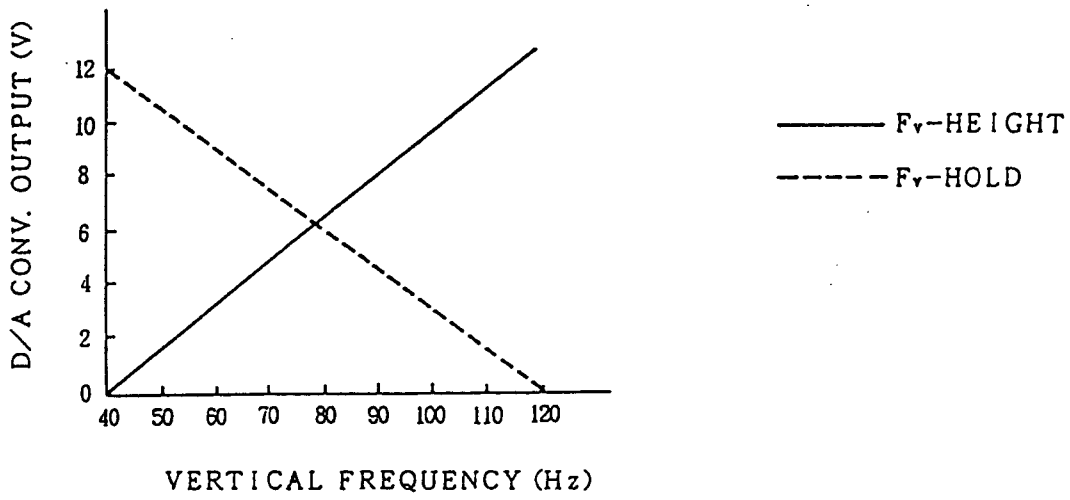
To stabilize the operation of internal circuit in wide frequency range, detection of frequency is performed by the micro computer (IC220) according to the following procedure.



2) Vertical Frequency (Fv) Detection

(1) The vertical sync. signal is applied to 26 pin (INT1) of IC220 and is detected by the count number of internal counter (0.1ms) during one period of vertical sync. signal.

(2) The relation of output voltage of D/A convertor vs. vertical frequency is as shown in below, to give the compensation of vertical hold and vertical height control.



(3) Fv-HOLD and Fv-HEIGHT control datas are selected by the data of ROM in IC220 according to the vertical frequency.

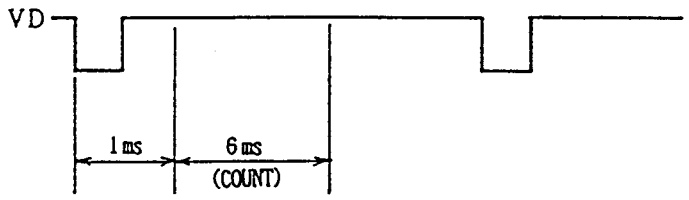
(4) The D/A convertor IC406 provides the following control signals.

11 pin : Fv-HOLD 10 pin : Fv-HEIGHT

(5) The detected vertical frequency by IC220 is used for the discrimination of limit frequency.

3) Horizontal Frequency (Fh) Detection

(1) The horizontal frequency (Fh) applied to 22 pin (CNTR) of IC220, is detected by the count number of internal counter during 6ms as shown in below.

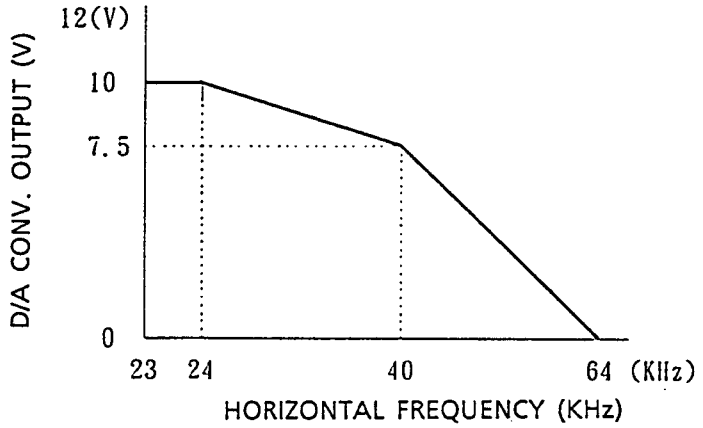


(2) The detected horizontal frequency is used for C_S selection, On screen display control and discrimination of limit frequency.

(3) The detected signal (HA) is provided from 12 pin of IC218 which signal is controlled by the micro computer IC220 according to the horizontal frequency.

(4) The signal of " HA " is used to compensate the current of high voltage drive transformer T902 by changing Q961 and Q962 so that the base drive condition of Q950 is optimized according to the horizontal frequency.

(5) The relation of horizontal frequency vs. output voltage of 12 pin of IC218 is as shown in below to give the compensation of drive condition of Q950.

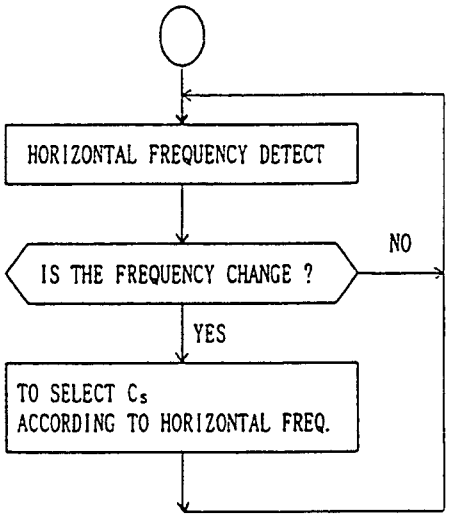


4) C_s Selection

(1) The selection of linearity compensation capacitor (C_s) is performed by output signal from 57 ~ 60 pin of IC220 which change the capacitance according to the horizontal frequency range as follows.

Horizontal Frequency (KHz)	IC220			
	57 Pin	58 Pin	59Pin	60 Pin
~ 27.3	L	L	L	L
27.3 ~ 29.9	L	H	L	L
29.9 ~ 32.2	H	L	L	L
32.2 ~ 34.0	H	L	L	H
34.0 ~ 37.0	H	L	H	L
37.0 ~ 44.0	H	H	L	L
44.0 ~ 47.9	H	H	L	H
47.9 ~ 61.6	H	H	H	L
61.6 ~	H	H	H	H

(2) Flow chart of C_s selection



5) Vertical Linearity (V-LIN.S) Control

(1) To compensate the vertical linearity, the output voltage from 10 pin of IC401 is controlled by the mico computer according to the vertical frequency.

(2) The output of IC401 is modulated by the parabolic waveform which is controlled to increase the output voltage by IC220 when the vertical frequency increases.

3.1-4 Source / Mode Selection

1) Source Selection

(1) The selection of input source is performed by the micro computer (IC220) as follows.

Source	IC220	
	8 pin	9 pin
Video 1	L	L
Video 2	H	L
RGB 1	L	H
RGB 2	H	H

(2) 14 pin of IC220 provides the blanking pulse during approx. 0.5 ~ 2sec. when change input sources.

2) Mode Selection

(1) The input source of RGB 1 and RGB 2 has the Mode 1 and Mode 2 individually, and can be adjusted the following items.

Adjustment Item	Video		RGB 1		RGB 2						
	NTSC	PAL SECAM	Mode 1	Mode 2	Mode 1	Mode 2					
						VGA			MAC II	1024/60	XGA
H-WIDTH	△	△	○	○	○	△	△	△	△	△	△
H-PHASE	△	△	○	○	○	△	△	△	△	△	△
V-HEIGHT	△	△	○	○	○	△	△	△	△	△	△
V-POSITION	△	△	○	○	○	△	△	△	△	△	△
BRIGHT	○	○	○		○						
CONTRAST	○	○	○		○						
COLOR	○	○	-		-						
TINT	○	-	-		-						
SHARPNESS	○	-	-		-						
VOLUME	○										
BALANCE	○										
PURITY	○										

(2) The selection of Mode 1 or Mode 2 is available by the front panel, wireless or wired remote controller

(3) The discrimination of Mode 2 of RGB 2 is as follows;

Horizontal Frequency Range (KHz)	H-Polarity	V-Polarity	Signal	Input Frequency
~33	Pos.		VGA350	31.5KHz, 70Hz
	Neg.	Pos.	VGA400	31.5KHz, 70Hz
		Neg.	VGA480	31.5KHz, 60Hz
33~42			Mac II	35.0KHz, 66.6Hz
42~51			1024/60Hz	48.36KHz, 60Hz
51~			XGA	56.48KHz, 70.1Hz

(4) The horizontal sync. signal is applied to 37 pin of IC220, which becomes "High" at positive polarity, and "Low" at negative polarity.

(5) The vertical sync. signal is applied to 36 pin of IC220, which becomes "High" at positive polarity, and "Low" at negative polarity.

(6) The discrimination of NTSC or PAL / SECAM of VIDEO source is determined by the vertical frequency. (NTSC: 60Hz, PAL / SECAM: 50Hz)

3.1-5 Wireless Remote Controller

The wireless remote controller provides the following functions.

(1) Power ON / OFF (Sub-Switch)

(2) Selection of SOURCE / MODE

(3) Raster adjustment

(4) Address number entry and call (The address number means number of monitor at the multi-display.)

(5) Degauss ON

(6) Selection of composite sync. signal at RGB input

(7) On screen display call / clear

(8) On screen display ON / OFF (Display OFF is used for SOURCE or MODE.)

(9) Mute ON / OFF

3.1-6 D/A Convertor

1) The micro computer (IC220) provides the following signal to the D/A convertors.

(1) Data signals (64 pin)

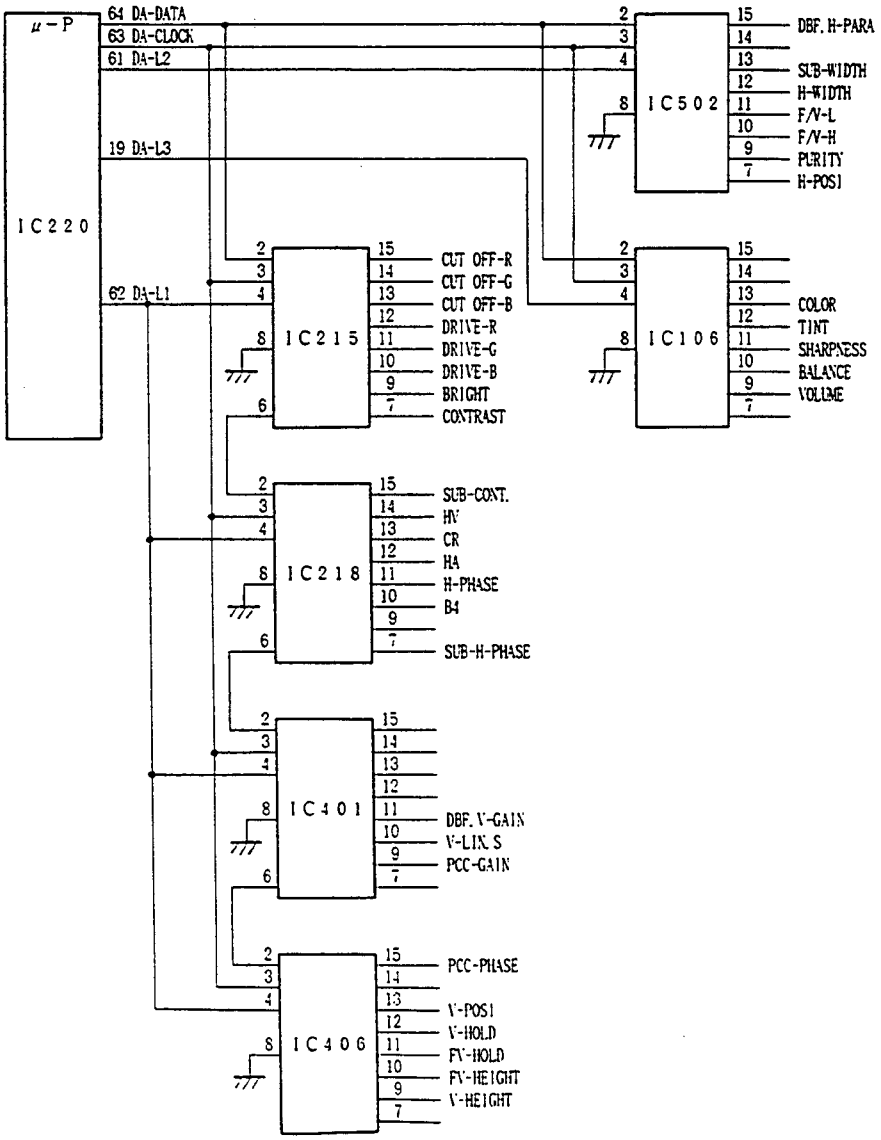
(2) Clock signals (63 pin)

(3) Load signals (62, 61, 19 pin)

2) The connection diagram and output signal is as follws.

3) The D/A convertors are composed to separate a pair of IC215, IC218, IC401 and IC406, a pair of IC502 and IC106. The load signals for D/A convertors are provided every one cycle of main loop to each pair of connection.

4) The load signals for D/A convertors are provided from IC220, 62 pin is for IC215, IC218, IC401 and IC406, 61 pin is for IC502, 19 pin is for IC106.



5) Relation of D/A conv. output vs. display condition

Item	D/A Data (Up<----->Down)	Display Condition
H-WIDTH	Inc. <----------> Dec.	Narrow <----------> Wide
SUB-WIDTH	Inc. <----------> Dec.	Narrow <----------> Wide
H-PHASE	Inc. <----------> Dec.	Left <----------> Right
H-POSI	Inc. <----------> Dec.	Left <----------> Right
V-HEIGHT	Inc. <----------> Dec.	Narrow <----------> Wide
V-POSI	Inc. <----------> Dec.	Down <----------> Up
BRIGHT	Dec. <----------> Inc.	Dark <----------> Light
CONTRAST	Dec. <----------> Inc.	Dark <----------> Light
COLOR	Dec. <----------> Inc.	Light <----------> Deep
TINT	Inc. <----------> Dec.	Red <----------> Green
CUT-OFF (R)	Inc. <----------> Dec.	Dark <----------> Light
CUT-OFF (G)	Inc. <----------> Dec.	Dark <----------> Light
CUT-OFF (B)	Inc. <----------> Dec.	Dark <----------> Light
SHARPNESS	Dec. <----------> Inc.	Soft <----------> Sharp
VOLUME	Dec. <----------> Inc.	Small <----------> Loud
BALANCE	Dec. <----------> Inc.	Left <----------> Right
PURITY	Dec. <----------> Inc.	North <----------> South
B4	Inc. <----------> Dec.	Volt. Dec. <--------> Inc.
HIGH VOLTAGE	Dec. <----------> Inc.	Volt. Dec. <--------> Inc.
V-HOLD	Inc. <----------> Dec.	Freq. Dec. <-------> Inc.

3.1-7 Read or Write Operation of E^2PROM

(1) Basically, the optimum display datas are memorized in E^2PROM in the factory.

(2) In case of no data in E^2PROM, the monitor displays raster according to the flow chart stated in

(3) In case of RGB 1 / RGB 2 (Mode 1), the adjustment datas are automatically memorized to E^2PROM when operates to push the buttons on front panel or wireless remote controller.
So, the datas are maintained in E^2PROM after turn off the power switch or select the other sources or modes. (The other Modes are not available.)

(4) In case of VIDEO / RGB 2 (Mode 2), the adjustment datas are only memorized in E^2PROM to push the both buttons of "DEGAUSS" and "CALL" at the same time.
(The monitor displays "MEMORIZED" on the screen when adjustment datas are memorized.)

(5) Normally, adjustment items are displayed on the screen when push the front buttons or wireless remote controller. If the further adjustment will be needed (for example, high volt. or B4 volt. etc.), the switch S209 on video PCB should be set to properly position. (Please refer to adjust. section)

3.1-8 On Screen Display

IC230 for on screen character display, is provided the following signals from micro computer IC220.

(1) Data signal (17 pin)

(2) Clock signal (16 Pin)

(3) Strobe signal (15 pin)

The above signals are used to display the source, mode, adjustment item, adjustment value, and address number on the screen.

3.1-9 External Wired Remote Control

1) The external wired remote control provides the following functions.

(1) Selection of Ext. (wired remote control) / Int. (wireless remote controller or front buttons).

(2) Power ON /OFF *

(3) Source selection *

(4) Mode selection *

(5) Degauss ON / OFF *

* These functions are only available to select the Ext.

2) Signal discrimination and selection

(1) The selection signals as shown in below are determined by the cmbination of, selection signal from 5~7 pin of IC220 to data selector IC201 and output signal from IC201 to 35 pin of IC220.

(2) The pin assignment of IC201 is as follows.

IC201	Level	Selection Signal	
13 pin	L	External	
	H	Internal	
12 pin	L	Power ON	*
	H	Power OFF	*
4 pin	L	Video 1	*
3 pin	L	Video 2	*
2 pin	L	RGB 1	*
1 pin	L	RGB 2	*
15 pin	L	Degauss	*
14 pin	L	Mode 1	*
	H	Mode 2	*

* These items are only available to select the external signal.

(3) The priority of source selection is as follows.

Video 1 > Video 2 > RGB 1 > RGB 2

(4) If all terminals for source selection signal become " High " level at the same time, the previous source is available.

(5) The wireless remote controller, and sub power switch, source and mode selection buttons are not functioned when select the Ext. signal.

3. ADJUSTMENT

3.1 GENERAL

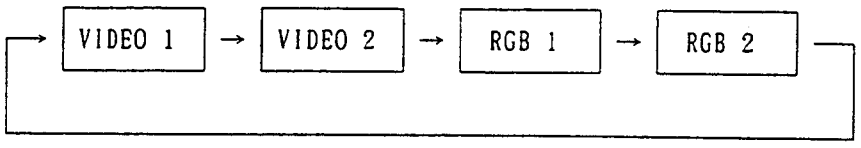
3.1-1 USER CONTROL

1) Push Switch

Remote / Front	Switch	Purpose
Wierless Remote Controller	POWER	Sub Power Switch ON / OFF
	VIDEO 1	Source Selection
	VIDEO 2	Source Selection
	RGB 1	Source Selection
	RGB 2	Source Selection
	BRIGHT	Brightness Control Select, Adjustable by Up / Down SW
	CONTRAST	Contrast Control Select, Adjustable by Up / Down SW
	VOLUME	Speaker Sound Control Select, Adjustable by Up / Down SW
	BALANCE	Speaker Balance Control Select, Adjustable by Up / Down SW
	SET	Adjustment Item Select (Refer to the next section)
	UP / DOWN	Adjustment Value Control
	Ten Keys	Address Number and Adjustment Item Set Up
	ENTER	Number and Data Entry
	DEGAUSS	To Operate the Manual Degauss during Approx. 5sec.
	CALL / CLEAR	Address, Source / Mode display call / clear
	MUTE	Mute Function ON / OFF
Front Panel	POWER	Sub Power Switch ON / OFF
	SOURCE	Source Selection (Refer to the next section)
	BRIGHT	Brightness Control Select, Adjustable by Up / Down SW
	CONTRAST	Contrast Control Select, Adjustable by Up / Down SW
	VOLUME	Speaker Sound Control Select, Adjustable by Up / Down SW
	BALANCE	Speaker Balance Control Select, Adjustable by Up / Down SW
	SET	Adjustment Item Select (Refer to the next section)
	UP / DOWN	Adjustment Value Control
	DEGAUSS	To Operate the Manual Degauss during Approx. 5sec.
	CALL / CLEAR	Address, Source / Mode display call / clear
	MUTE	Mute Function ON / OFF

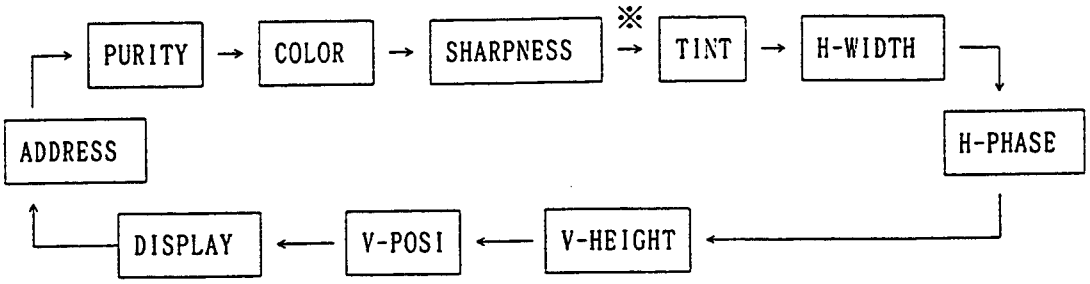
2) Source and Adjustment Item Selection

(1) The input sources can be selected when push the " SOURCE " switch on the front panel as follows.



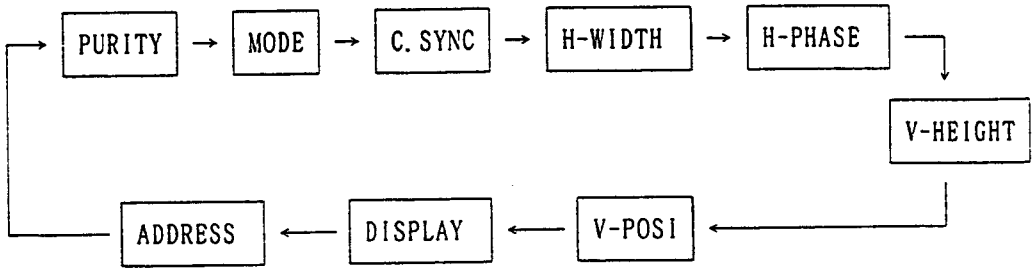
(2) The adjustment items can be selected when push the "SET" switch on the front panel or wireless remote controller as follows.

<VIDEO>



※ : NTSC

<RGB>



(3) Adjustment Item

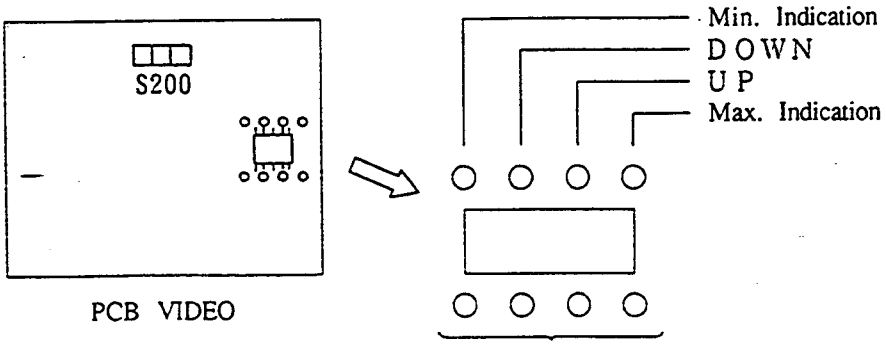
(3)-1	PURITY	: Cancel coil current adjustment to compensate the color purity
(3)-2	COLOR	: Light or deep control of color
(3)-3	SHARPNESS	: Sharp or soft control of picture
(3)-4	TINT	: Color tone control
(3)-5	H-WIDTH	: Horizontal raster size control
(3)-6	H-PHASE	: Horizontal raster position control
(3)-7	V-HEIGHT	: Vertical raster size control
(3)-8	V-POSI	: Vertical raster size control
(3)-9	DISPLAY	: Source or Mode ON / OFF
(3)-10	ADDRESS	: Address number set up for the multi display
(3)-11	MODE	: Mode selection

3.1-2 INTERNAL ADJUSTMENT

1) Access to internal Adjustment

(1) Normally, adjustment items are displayed on the screen when push the switches on the front panel or wireless remote controller. However, if the further adjustments will be needed, internal switch of S200 on the VIDEO PCB should be set to the proper position for the internal adjustments, which works to change the function of front switches as follows.

(2) The adjustment items are not displayed on the screen when change the position of S200, so that the confirmation of adjustment items should be used by the indication of internal LED on PCB VIDEO.



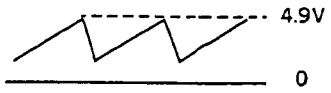
S200 CENTER	S200 LEFT	S200 RIGHT	INDICATION OF LOWER LED
POWER	H-POSITION	DBF H-PARA	○ ● ● ●
SOURCE	CUT-OFF-R	DBF V-GAIN	● ○ ● ●
BRIGHT	CUT-OFF-G	B4	○ ○ ● ●
CONTRAST	CUT-OFF-B	HIGH VOLTAGE (HV)	● ● ○ ●
VOLUME	DRIVE-R	———	○ ● ○ ●
BALANCE	DRIVE-G	———	● ○ ○ ●
SET	DRIVE-B	PCC-GAIN	○ ○ ○ ●
CALL/CLEAR	SUB-CONT. VIDEO	PCC-PHASE	● ● ● ○
MUTE	———	H-HOLD	○ ● ● ○
DEGAUSS	SUB-WIDTH	V-HOLD	● ○ ● ○
DOWN	DOWN	DOWN	
UP	UP	UP	

※ The direction of switch is see from rear side of monitor.

※ L E D ○ : ON ● : OFF

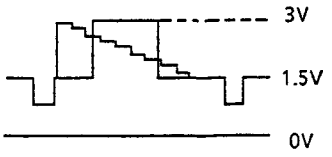
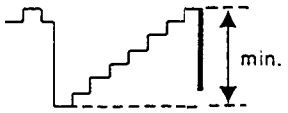
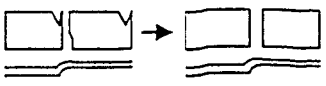
※ The RGB Drive can be adjusted for the RGB and VIDEO input individually.

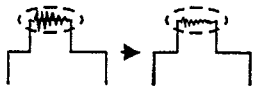
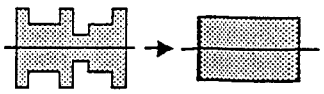
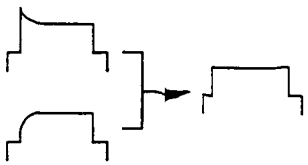
2) Adjustment Procedure

NO.	ADJUST. ITEM	INPUT SIGNAL		SOURCE (MODE)	CONDITION	A : Direction of S200 B : FRONT SW	ADJUSTMENT
		TIMING	PATTERN				
1	B4	VGA480 (#5)	No video	RGB 1 (M1)	CONT : Max. BRT : 0	A : → B : BRIGHT	Adjust the voltage of TP-1 (PCB POWER) for a 27.8±0.3V by UP/DOWN switch
2	High Voltage	VGA480 (#5)	Full White Raster	RGB 1 (M1)	CONT : Max. BRT : 0	A : → B : CONTRAST	Adjust the anode voltage for a 31.5±0.3KV by UP/DOWN switch
3	H−HOLD 1	f_H = 47.5KHz (#15)	Cross hatch	RGB 1 (M1)	CONT : Max. BRT : 0	———	Adjust VR 1 to get same voltage between TP-1 and TP-2 (PCB DEFL)
4	H−HOLD 2	VGA480 (#5)	Cross hatch	RGB 1 (M1)	CONT : Max. BRT : 0	———	Adjust VR 2 to get same voltage between TP-1 and TP-2 (PCB DEFL)
5	H−HOLD	PC9801 (#1) HP 63K (#13)	Cross hatch	RGB 1 (M1)	CONT : Max. BRT : 0	———	Only confirmation of synchronization
6	V−HOLD	VGA480 (#5)	Cross hatch	RGB 1 (M1)	CONT : Max. BRT : 0	A : → B : DEGAUSS	Adjust the waveform on TP-3 for a 4.9±0.1V by UP/DOWN switch 
7	H−POSI	f_H = 45KHz (#14)	No video	RGB 1 (M1)	Adjust the BRIGHT and SCREEN control to appear a back ground.	A : ← B : POWER	Adjust the back raster to center of CRT by UP/DOWN switch
8	PCC−GAIN PCC−PHASE	VGA480 (#5)	Cross hatch	RGB 1 (M1)	CONT : Max. BRT : 0	A : → B : SET CALL/CLEAR	Adjust the PCC control to get the straight raster
9	SUB−WIDTH	PCH98 (#11)	Full White Raster	RGB 1 (M1)	CONT : Max. BRT : 0	A : ← B : DEGAUSS	Adjust the horizontal width for a 675±5mm by UP/DOWN switch
10	DBF	5570T (#9)	Full White Raster	RGB 1 (M1)	CONT : Max. BRT : 0	A : → B : H : POWER V : SOURCE	Adjust the parabolic waveform on TP-DBF (PCB CRT) for 7 50V (horizontal) and 280V (vertical)
11	FOCUS	5570T (#9)	Cross hatch	RGB 1 (M1)	CONT : Max. BRT : 0	———	Adjust the focus by FOCUS potentiometers (F1, F2) on FBT
12	CUT−OFF	VGA480 (#5)	No video	RGB 1 (M1)	CONT : Max. BRT : 0	A : ← B : R : SOURCE G : BRIGHT B : CONTRAST	1. Adjust the RGB Cut-Off control to their min. values. 2. Set S401 to get the horizontal line. 3. Adjust the screen control to get the slight horizontal line. 4. Adjust the RGB Cut-Off control to get a white line. 5. Set S401 to normal position.
13	DRIVE	VGA480 (#5)	Green Window	RGB 1 (M1)	CONT : Max. BRT : 0	A : ← B : BALANCE	Adjust the brightness of green color for a 110nits
14	WHITE BALANCE	VGA480 (#5)	White Window	RGB 1 (M1)	CONT : Max. BRT : 0	A : ← B : R : VOLUME B : SET	Adjust the white balance as follows by UP/DOWN switch X = 0.283 Y = 0.297

NO.	ADJUST. ITEM	INPUT SIGNAL		SOURCE (MODE)	CONDITION	A : Direction of S200 B : FRONT SW	ADJUSTMENT
		TIMING	PATTERN				
15	RASTER SIZE and POSITION	HP63K (#13)	Full White Raster	RGB 1 (M1)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
16	RASTER SIZE and POSITION	5570T (#9)	Full White Raster	RGB 1 (M2)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
17	RASTER SIZE and POSITION	PC9801 (#1)	Full White Raster	RGB 1 (M1)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
18	RASTER SIZE and POSITION	VGA350 (#3)	Full White Raster	RGB 2 (M2)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
19	RASTER SIZE and POSITION	VGA400 (#4)	Full White Raster	RGB 2 (M2)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
20	RASTER SIZE and POSITION	VGA480 (#5)	Full White Raster	RGB 2 (M2)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
21	RASTER SIZE and POSITION	MAC II (#6)	Full White Raster	RGB 2 (M2)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
22	RASTER SIZE and POSITION	1024 60Hz (#10)	Full White Raster	RGB 2 (M2)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
23	RASTER SIZE and POSITION	XGA (#12)	Full White Raster	RGB 2 (M2)	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size as follows H-WIDTH : 660mm V-HEIGHT : 495mm
24	RASTER SIZE and POSITION	NTSC	Cross hatch	VIDEO 1	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size for an over scanning
25	RASTER SIZE and POSITION	PAL / SECAM	Cross hatch	VIDEO 1	CONT : Max. BRT : 0	A : CENTER B :	Adjust the raster size for an over scanning

PCB—SCAN Adjustment

NO.	ADJUST. ITEM	INPUT SIGNAL		SOURCE (MODE)	CONDITION	A : Direction of S200 B : FRONT SW	ADJUSTMENT
		TIMING	PATTERN				
1	Turn all potentiometers to their center position before POWER ON,						
2	V_{RT} (VR101) V_{RB} (VR102)	NTSC	Color bar Chroma OFF	VIDEO 1	———	———	(1) Connect the oscilloscope between TP-6 and GND. DC V : 50mV/div H : 10μsec/div Adjust VR101 for a 3.5 ± 0.05V (2) Connect the oscilloscope between TP-7 and GND. DC V : 50mV/div H : 10μsec/div Adjust VR102 for a 1.5 ± 0.05V
3	VIDEO SUB BRIGHT (VR106) VIDEO SUB CONTRAST (VR105)	NTSC	Color bar Chroma OFF	VIDEO 1	———	———	Connect the oscilloscope between TP-3 and GND. DC V : 50mV/div H : 10μsec/div Adjust the black level for a 1.5V by VR106, and the white level for a 3V by VR105 as follows. 
4	VERTICAL OUTLINE COMPENSATION	NTSC	Color bar Chroma ON	VIDEO 1	———	———	Connect the oscilloscope between TP-4 and GND. DC V : 20mV/div H : 10μsec/div Adjust the VR110 to get the min. amplitude as follows. 
5	VERTICAL OUTLINE COMPENSATION BALANCE	NTSC	Color bar Chroma ON	VIDEO 1	———	———	(1) Connect the TP8 and GND by lead cable (short). (2) Connect the oscilloscope between TP-5 and GND. AC V : 20mV/div H : 2msec/div Adjust the vertical out line compensation waveform by VR113 as follows. 

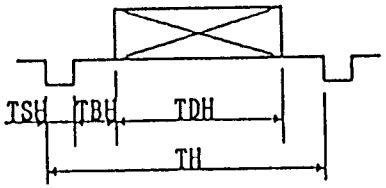
NO.	ADJUST. ITEM	INPUT SIGNAL		SOURCE (MODE)	CONDITION	A : Direction of S200 B : FRONT SW	ADJUSTMENT
		TIMING	PATTERN				
6	COMB FILTER	NTSC	Color bar Chroma ON	VIDEO 1	———	———	Connect the oscilloscope between TP-5 and GND. AC V : 50mV/div H : 10μsec/div Adjust the chromacity signal to get the min. amplitude by VR111 and VR112.
7	VIDEO SIGNAL LEVEL	NTSC	Color bar Chroma ON	VIDEO 1	———	———	Connect the oscilloscope between TP-3 and GND. DC V : 50mV/div H : 10μsec/div Adjust the white level for a 3.0V by VR103.
8	DELAY LINE COIL	PAL	Color bar	VIDEO 1	———	———	Connect the oscilloscope between TP-3 and GND. DC V : 50mV/div H : 10μsec/div Adjust the waveform to get the min. amplitude by L109 and VR104 as follows. 
9	BELL FILTER	SECAM	Color bar	VIDEO 1	———	———	Connect the oscilloscope between TP−1 and GND. DC V : 10mV/div H : 10μsec/div Adjust the waveform to get the flat shape by LC103 as follows. 
10	REFERENCE COIL	SECAM	Color bar	VIDEO 1	———	———	Connect the oscilloscope between TP−2 and GND. DC V : 1V/div H : 10μsec/div Adjust the voltage on TP−2 to get the max. voltage by LC104.
11	DISCRIMINAT-OR COIL	SECAM	No video	VIDEO 1	———	———	Connect the oscilloscope between TP−1 and GND. DC 50mV/div 10μsec, AC (1) Adjust LC101 to get the straight waveform as follows. (2) Adjust LC102 to get the straight waveform as follows. 

NO.	ADJUST. ITEM	INPUT SIGNAL		SOURCE (MODE)	CONDITION	A : Direction of S200 B : FRONT SW	ADJUSTMENT
		TIMING	PATTERN				
12	AFC	NTSC	Cross hatch	VIDEO 1	———	———	Connect the oscilloscope to 9pin of IC181 on PCB VIDEO. DC V : 1V/div H : 0.2μsec/div Adjust voltage for a 6.0 ± 0.2V by L110.
13	WHITE BALANCE	NTSC	Color bar	VIDEO 1	COLOR : Min. CONT : Max. BRT : 0	A : ← B : R_V : VOLUME G_V : BALANCE B_V : SET	(1) Adjust the green color drive control to its center value by UP / DOWN switch. (2) Adjust the red and blue color drive controls as follows. X = 0.283 Y = 0.297
14	SUB CONTRAST VIDEO	NTSC	Color bar	VIDEO 1	COLOR : Min. CONT : Max. BRT : 0	A : ← B : CALL / CLEAR	Adjust the brightness for a 230nits on the center of window pattern by UP / DOWN switch.

TIMING CHART DATA

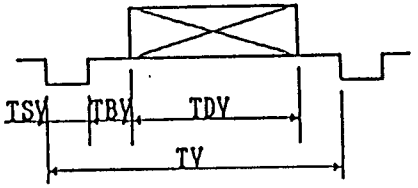
<HORIZONTAL>

UNIT:μs



<VERTICAL>

UNIT:ms



No	DOT IN DISPLAY	CHR. SIZE	TH	TSH	TBH	TDH	TV	TSV	TBV	TDV	H.SYC.	V.SYC.	I/NI	REMARKS
①	640	8× 8	40.280	3.040	4.040	30.400	18.040	0.320	1.280	16.120	NEG.	NEG.	NI	PC 9801
②	1120	8× 8	30.440	1.760	2.720	23.420	12.633	0.152	0.822	11.415	NEG.	NEG.	I	PC 98XA
③	640	10×10	31.778	3.813	1.907	25.422	14.268	0.064	1.907	11.122	NEG.	POS.	NI	VGA 350
④	640	10×10	31.778	3.813	1.907	25.422	14.268	0.064	1.111	12.711	POS.	NEG.	NI	VGA 400
⑤	640	10×10	31.778	3.813	1.907	25.422	16.683	0.064	1.048	15.253	NEG.	NEG.	NI	VGA 480
⑥	640	8× 8	28.571	2.116	3.157	21.164	15.000	0.086	1.114	13.714	POS.	POS.	NI	MACII
⑦	1120	8× 8	27.440	2.000	2.800	22.440	11.141	0.439	0.412	10.263	NEG.	NEG.	I	FMR70
⑧	800	8× 8	26.400	3.200	2.200	20.000	16.579	0.106	0.607	15.840	POS.	POS.	NI	S-VGA
⑨	1024	16×16	21.520	1.100	1.280	17.600	8.763	0.065	0.366	8.220	NEG.	NEG.	I	5570T
⑩	1024	8× 8	20.676	2.092	2.462	15.754	16.666	0.124	0.600	15.880	POS.	POS.	NI	1024 60Hz
⑪	1120	16×16	19.99	1.430	2.140	14.280	16.650	0.200	0.920	14.990	NEG.	NEG.	NI	PCH98
⑫	1024	8× 8	17.707	1.813	1.920	13.653	14.272	0.106	0.513	13.599	POS.	POS.	NI	XGA
⑬	1024	8× 8	15.788	1.701	1.849	11.832	16.672	0.047	0.410	16.167	NEG.	NEG.	NI	HP63K
⑭	640	8× 8	22.222	1.000	1.000	20.222	12.500	0.067	0.378	12.067	NEG.	NEG.	NI	45K
⑮	640	8× 8	21.053	1.100	1.280	17.600	12.500	0.063	0.358	12.084	NEG.	NEG.	NI	47.5K

NI:NON INTERLACE I:INTERLACE

No	DOT IN DISPLAY	CHR. SIZE	TH	TSH	TBH	TDH	TV	TSV	TBV	TDV	H.SYC.	V.SYC.	I/NI	REMARKS
⑯	640	8× 8	31.775	2.540	3.140	25.420	14.267	0.064	1.080	12.710	NEG.	NEG.	NI	PCH98 ﾉｰﾏﾙ
⑰	640	8× 8	31.780	3.810	1.870	25.420	16.684	0.064	1.016	15.254	NEG.	NEG.	NI	16C
⑱	1280	10×10	15.479	1.786	1.488	11.907	16.686	0.062	0.665	15.850	NEG.	NEG.	NI	24C

NI:NON INTERLACE I:INTERLACE

RECOMMENDED SERVICE PARTS AND PRICE LIST

MODEL NO. : XC-3725C

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ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION		PART NO.
1		PICTURE TUBE (ITC)	M89KKU11X	CT251B00702
2	Q200, 202, 203	TRANSISTOR	2SC1959	CP260P00201
	Q205, 206, 208	TRANSISTOR	2SC1959	CP260P00201
	Q211, 213, 215	TRANSISTOR	2SC1959	CP260P00201
	Q227, 230	TRANSISTOR	2SC1959	CP260P00201
3	Q101, 102, 107	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q109, 118, 124	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q125, 131, 133	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q135, 136, 138	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q139, 143, 144	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q145, 146, 224	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q225, 237, 238	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q303, 304, 305	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q308, 309, 401	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q402, 404, 405	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q406, 407, 408	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q409, 410, 411	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q502, 503, 504	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q505, 506, 507	TRANSISTOR	2SC1815 BL GR Y	CP260P05702

RECOMMENDED SERVICE PARTS AND PRICE LIST

MODEL NO. : XC-3725C

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ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION		PART NO.
	Q508, 513, 515	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q517, 522, 525	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q904, 905, 906	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q912, 916, 921	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
	Q931, 934	TRANSISTOR	2SC1815 BL GR Y	CP260P05702
4	Q915	TRANSISTOR	2SC3332-S	CP260P07302
5	Q4C4, 5E1, 5E4	FET	2SK934	CP260P08401
	Q523, 907	FET	2SK934	CP260P08401
6	Q5E7, 932	FET	2SK793	CP260P08501
7	Q415, 512, 518	TRANSISTOR	2SD2012	CP260P08601
8	Q414, 511, 519	TRANSISTOR	2SB1375	CP260P08701
9	Q115, 116, 132	TRANSISTOR	2SA1015	CP260P13001
	Q134, 221, 222	TRANSISTOR	2SA1015	CP260P13001
	Q223, 231, 501	TRANSISTOR	2SA1015	CP260P13001
	Q514, 520	TRANSISTOR	2SA1015	CP260P13001
10	Q901, 902, 903	FET	2SK955	CP260P15601
11	Q4C3	TRANSISTOR	2SA1668	CP260P15701
12	Q5E2, 5E3	FET	2SK820	CP260P52301
13	Q6B6, 6G6, 6R6	TRANSISTOR	2SA1381	CP260P52901
14	Q6B7, 6G7, 6R7	TRANSISTOR	2SC2551	CP260P53001

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15	Q4C1	TRANSISTOR	2SD1408-O, Y	CP260P53401
16	Q4C2	TRANSISTOR	2SB1017-O, Y	CP260P53501
17	Q5E5	TRANSISTOR	2SC3998	CP260P53801
18	Q104, 105, 106	TRANSISTOR	RT1N141S	CP260P53901
	Q108, 110, 122	TRANSISTOR	RT1N141S	CP260P53901
	Q123, 140, 150	TRANSISTOR	RT1N141S	CP260P53901
	Q151, 301, 302	TRANSISTOR	RT1N141S	CP260P53901
	Q306, 307, 310	TRANSISTOR	RT1N141S	CP260P53901
	Q311, 403, 5E8	TRANSISTOR	RT1N141S	CP260P53901
	Q5E9, 5F0, 5F1	TRANSISTOR	RT1N141S	CP260P53901
19	Q5E6, 6F2	FET	2SK612	CP260P54301
20	Q4C6, 510	TRANSISTOR	2SC3620	CP260P54401
21	Q633, 634	TRANSISTOR	2SC4709	CP260P54501
22	Q914	TRANSISTOR	2SC3112-B	CP261P02201
23	Q909, 910	FET	2SK1365	CP261P16801
24	Q2B1, 2G1, 2R1	TRANSISTOR	2SA1115-E, F	QX260C25601
25	Q119, 120, 121	TRANSISTOR	2SC1213-C, D	QX260C28107
	Q128, 129, 130	TRANSISTOR	2SC1213-C, D	QX260C28107
26	Q111	TRANSISTOR	2SA673-C, D	QX260P16607
27	Q112	TRANSISTOR	2SC1213-C, D	QX260P28107

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28	Q234, 235, 236	TRANSISTOR	2SC2236-O, Y	QX260P38701
	Q5F3	TRANSISTOR	2SC2236-O, Y	QX260P38701
29	Q4C5, 4C7, 521	TRANSISTOR	2SC2482	QX260P42201
30	Q509	TRANSISTOR	2SA1320 / 2SA1321	QX260P46901
31	Q913	TRANSISTOR	2SC1749C, D / 2SC1749E / 2SC4544	RX260P35202
32	Q412, 911	TRANSISTOR	2SC2317	RX270P51201
33	Q127, 141, 142	TRANSISTOR	2SC2347	RX270P52301
	Q632	TRANSISTOR	2SC2347	RX270P52301
34	Q228, 229	TRANSISTOR	2SA781	RX270P52401
35	Q413, 524, 908	TRANSISTOR	2SD921	RX270P55901
36	Q201, 204, 207	FET	2SK168-F	RX270P60103
	Q209, 210, 212	FET	2SK168-F	RX270P60103
	Q214, 216, 217	FET	2SK168-F	RX270P60103
	Q218, 219, 220	FET	2SK168-F	RX270P60103
37	IC402, 405	INTEGRATED CIRCUIT	M5218AL	CP263P01102
38	IC301	INTEGRATED CIRCUIT	M51523AL	CP263P01302
39	IC104	INTEGRATED CIRCUIT	TC4052BP / MC14052BCP	CP263P02001
40	IC109, 403, 503	INTEGRATED CIRCUIT	M5223L	CP263P02202
	IC504, 915, 916	INTEGRATED CIRCUIT	M5223L	CP263P02202

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41	IC404	INTEGRATED CIRCUIT	M5207L05	CP263P02601
42	IC507, 917	INTEGRATED CIRCUIT	M51978P	CP263P50501
43	IC105	INTEGRATED CIRCUIT	TA8659AN	CP263P52201
44	IC302	INTEGRATED CIRCUIT	LA4270	CP263P52401
45	IC224, 509	INTEGRATED CIRCUIT	TA78L005AP	CP263P52601
46	IC904, 905	INTEGRATED CIRCUIT	M51977	CP263P52701
47	IC181	INTEGRATED CIRCUIT	TA8667P	CP263P52901
48	IC121, 141, 161	INTEGRATED CIRCUIT	HA19211BNT	CP263P53001
49	IC130, 150, 170	INTEGRATED CIRCUIT	HA19510	CP263P53101
50	IC108	INTEGRATED CIRCUIT	MPC78M09HF	CP263P53301
51	IC103	INTEGRATED CIRCUIT	TL8803P	CP263P53401
52	IC102	INTEGRATED CIRCUIT	TA8728P	CP263P53501
53	IC222	INTEGRATED CIRCUIT	M52013P	CP263P53601
54	IC2B1, 2G1, 2R1	INTEGRATED CIRCUIT	VPH05-LB	CP263P53701
55	IC101	INTEGRATED CIRCUIT	M51329P	CP263P53801
56	IC110	INTEGRATED CIRCUIT	PQ05RF1	CP263P53901
57	IC213	INTEGRATED CIRCUIT	MPD6451ACX	CP263P54001
58	IC920	INTEGRATED CIRCUIT	HD29026AP	CP263P54101
59	IC913	INTEGRATED CIRCUIT	PC2412HF	CP263P54201
60	IC901, 902	TRIAC	BCR10PM-12L	CP265P02201

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61	IC903	PHOTO-TRIAC	TLP666JF	CP265P50301
62	IC906, 907, 908	PHOTO-COUPLER	TLP732LF2	CP265P50401
63	IC202	INTEGRATED CIRCUIT	M74LS86P / HD74LS86 / SN74LS86N	CP266D00203
64	IC223	INTEGRATED CIRCUIT	M74LS244P / HD74LS244 / SN74LS24	CP266D00207
65	IC203	INTEGRATED CIRCUIT	M74LS08P / HD74LS08 / SN74LS08N	CP266D00209
66	IC219, 506	INTEGRATED CIRCUIT	74LS123	CP266P02801
67	IC107, 189, 208	INTEGRATED CIRCUIT	74LS221	CP266P03001
	IC216, 501	INTEGRATED CIRCUIT	74LS221	CP266P03001
68	IC914	INTEGRATED CIRCUIT	MPC7824HF / L7824ML / M5F7824L	CP266P05006
69	IC217	INTEGRATED CIRCUIT	CXK1009P	CP266P05801
70	IC106, 215, 218	INTEGRATED CIRCUIT	MPD6326C	CP266P06101
	IC401, 406, 502	INTEGRATED CIRCUIT	MPD6326C	CP266P06101
71	IC910	INTEGRATED CIRCUIT	PQ05R01	CP266P07501
72	IC912	INTEGRATED CIRCUIT	SI-3052V	CP266P50101
73	IC220	INTEGRATED CIRCUIT	M50747ESP	CP266P50701
74	IC212	INTEGRATED CIRCUIT	M74LS164	CP266P50801
75	IC210	INTEGRATED CIRCUIT	MC14052BCP	CP266P50901
76	IC214	INTEGRATED CIRCUIT	MC74HC4053N	CP266P51201
77	IC200	INTEGRATED CIRCUIT	MC14584BCP	CP266P51301
78	IC205	INTEGRATED CIRCUIT	M51848P	CP266P51401

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79	IC221	INTEGRATED CIRCUIT	M51953AL	CP266P51601
80	IC201	INTEGRATED CIRCUIT	74LS151	CP266P51701
81	IC911	INTEGRATED CIRCUIT	S1-3122V	CP267P00401
82	IC112, 186, 187	INTEGRATED CIRCUIT	SN74ALS74AN / M74ALS74P	CP271D01201
	IC188	INTEGRATED CIRCUIT	SN74ALS74AN / M74ALS74P	CP271D01201
83	IC185, 190	INTEGRATED CIRCUIT	SN74ALS161BN / M74ALS161P	CP271D01401
84	IC122, 124, 125	INTEGRATED CIRCUIT	SN74ALS574N / M74ALS574P	CP271D02701
	IC128, 131, 142	INTEGRATED CIRCUIT	SN74ALS574N / M74ALS574P	CP271D02701
	IC144, 145, 148	INTEGRATED CIRCUIT	SN74ALS574N / M74ALS574P	CP271D02701
	IC151, 162, 164	INTEGRATED CIRCUIT	SN74ALS574N / M74ALS574P	CP271D02701
	IC165, 168, 171	INTEGRATED CIRCUIT	SN74ALS574N / M74ALS574P	CP271D02701
85	IC183	INTEGRATED CIRCUIT	74F00PC / MC74F00N / N7400N	CP272D00201
86	IC184	INTEGRATED CIRCUIT	74F74PC / MC74F74N / N74F74N	CP272D00801
87	IC127, 129, 147	INTEGRATED CIRCUIT	74F283N / MC74F283N / 74F283P	CP272D50101
	IC149, 167, 169	INTEGRATED CIRCUIT	74F283N / MC74F283N / 74F283P	CP272D50101
88	IC182	INTEGRATED CIRCUIT	74ACTQ244	CP272P50201
89	IC123, 126, 143	INTEGRATED CIRCUIT	MPD42102C-3	CP275P50801
	IC146, 163, 166	INTEGRATED CIRCUIT	MPD42102C-3	CP275P50801
90	IC111	INTEGRATED CIRCUIT	TC4066BP	QX263P06602
91	IC209	INTEGRATED CIRCUIT	74LS04	QX266P85001

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92	IC204, 207	INTEGRATED CIRCUIT	MPC319C / LM319D	RX266P74601
93	IC211	INTEGRATED CIRCUIT	SN74LS74AN	RX266P84901
94	IC206	INTEGRATED CIRCUIT	M74LS32P / SN74LS32N	RX266P87801
95	IC505	INTEGRATED CIRCUIT	AN5790N	RX277P61302
96	IC407	INTEGRATED CIRCUIT	TDA1670	RX277P61801
97	IC508, 909	INTEGRATED CIRCUIT	TL431CLPB	RX277P65001
98	D218, 219, 220	LED	LN321GP	CP264P00601
	D221, 222, 223	LED	LN321GP	CP264P00601
	D224, 225	LED	LN321GP	CP264P00601
99	D5E4	DIODE	EK13	CP264P01001
100	D940, 941	DIODE	RU-2B	CP264P01602
101	D904	DIODE	EG01Y	CP264P02801
102	D913, 914, 915	DIODE	HZ18-2	CP264P05001
	D955	DIODE	HZ18-2	CP264P05001
103	D926, 927, 928	DIODE	RG2A2	CP264P05801
	D929	DIODE	RG2A2	CP264P05801
104	D411	DIODE	HZ3B2	CP264P07105
105	D4C6, 408, 409	DIODE	HZ5C1	CP264P07305
	D502	DIODE	HZ5C1	CP264P07305

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106	D238	DIODE	HZ6C1	CP264P07404
107	D934	DIODE	HZ7B2	CP264P07501
108	D936	DIODE	HZ11A2	CP264P08002
109	D306	DIODE	HZ12A2	CP264P08101
110	D910, 918	DIODE	HZ27-1	CP264P08307
111	D634, 635	DIODE	HZ12B2	CP264P08503
112	D920	DIODE	FMG-26S	CP264P09001
113	D901	DIODE	RBV-608	CP264P12303
114	D9A0, 902, 903	DIODE	R4KL-J2	CP264P12701
115	D921	DIODE	RL4Z-M1	CP264P13401
116	D911, 912	DIODE	EG-1Z	CP264P50601
117	D924, 925	DIODE	FML-12S	CP264P50801
118	D101	LED	SLP-262B	CP264P51901
119	D905, 906	DIODE	RG4C	CP264P52001
120	D531, 920, 922	DIODE	FML-13S	CP264P52101
	D931, 960	DIODE	FML-13S	CP264P52101
121	D923	DIODE	RL2Z	CP264P52201
122	D510, 511	DIODE	RP1H	CP264P52301
123	D5E3	DIODE	FMP-G3FS	CP264P52401
124	D501, 508, 509	DIODE	TVR1G / ES-1	QX264D05601

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	D512, 513, 6B3	DIODE	TVR1G / ES-1	QX264D05601
	D6G3, 6R3, 633	DIODE	TVR1G / ES-1	QX264D05601
	D942	DIODE	TVR1G / ES-1	QX264D05601
125	D4C3, 4C4, 404	DIODE	S5500-D / EM-1Z / ERB12-02RK	QX264D05602
	D405, 5E2, 514	DIODE	S5500-D / EM-1Z / ERB12-02RK	QX264D05602
	D516	DIODE	S5500-D / EM-1Z / ERB12-02RK	QX264D05602
126	D102, 103, 104	DIODE	1S2076A / 1S2471	QX264P04508
	D105, 106, 107	DIODE	1S2076A / 1S2471	QX264P04508
	D103, 104, 106	DIODE	1S2076A / 1S2471	QX264P04508
	D107, 209, 211	DIODE	1S2076A / 1S2471	QX264P04508
	D212, 213, 214	DIODE	1S2076A / 1S2471	QX264P04508
	D215, 301, 4C1	DIODE	1S2076A / 1S2471	QX264P04508
	D4C2, 4C7, 401	DIODE	1S2076A / 1S2471	QX264P04508
	D402, 403, 406	DIODE	1S2076A / 1S2471	QX264P04508
	D407, 503, 504	DIODE	1S2076A / 1S2471	QX264P04508
	D506, 507, 517	DIODE	1S2076A / 1S2471	QX264P04508
	D518, 519, 520	DIODE	1S2076A / 1S2471	QX264P04508
	D521, 522, 523	DIODE	1S2076A / 1S2471	QX264P04508
	D525, 526, 527	DIODE	1S2076A / 1S2471	QX264P04508
	D5E5, 524, 532	DIODE	1S2076A / 1S2471	QX264P04508

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	D632, 907, 908	DIODE	1S2076A / 1S2471	QX264P04508
	D917, 932, 933	DIODE	1S2076A / 1S2471	QX264P04508
	D9A2, 9A3, 9A4	DIODE	1S2076A / 1S2471	QX264P04508
	D935, 937, 951	DIODE	1S2076A / 1S2471	QX264P04508
127	D302, 303, 304	DIODE	RM-1B	QX264P10105
	D305	DIODE	RM-1B	QX264P10105
128	D216, 217	DIODE	MZ305B / EQA02-05CDB	QX264P19303
129	D108	DIODE	MZ309-B2 / HZ9B24	QX264P19308
130	D108, 109	DIODE	MZ316B / EQA02-16ABB	QX264P22107
131	D9A1	DIODE	MZ314-B	QX264P22202
132	D101, 105, 200	DIODE	MZ306-B2 / HZ6C21	QX264P22203
	D201, 202, 203	DIODE	MZ306-B2 / HZ6C21	QX264P22203
	D204, 205, 206	DIODE	MZ306-B2 / HZ6C21	QX264P22203
	D207, 226, 227	DIODE	MZ306-B2 / HZ6C21	QX264P22203
	D228, 229, 230	DIODE	MZ306-B2 / HZ6C21	QX264P22203
	D231, 232, 233	DIODE	MZ306-B2 / HZ6C21	QX264P22203
	D234, 235, 236	DIODE	MZ306-B2 / HZ6C21	QX264P22203
	D237, 239	DIODE	MZ306-B2 / HZ6C21	QX264P22203
133	D4C5, 515, 950	DIODE	HZT33-01	QX264P24401
134	D930, 961	DIODE	RZKY	QX264P30601

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135	D2B1, 2B2, 2G1	DIODE	1SS83	QX264P36701
	D2G2, 2R1, 2R2	DIODE	1SS83	QX264P36701
136	D5E1, 530	DIODE	MZ316	RX264P22007
137	T501	TRANSFORMER	H-OUT	CP332P50302
138	T903	TRANSFORMER	FLYBACK	CP334P50601
139	T5E1	TRANSFORMER	H-DRIVE	CP336P50201
140	T901	TRANSFORMER	POWER	CP350P50901
141	T902	TRANSFORMER	POWER	CP350P51001
142		TRANSFORMER	AUDIO	CP350P50702
143	T100, 101	TRANSFORMER	CHROMA	QX349P15902
144	L120, 506	COIL	CHOKE TSL1110-330K1R8	CP321P00802
145	L503	COIL	CHOKE TSL1110-220K2R2	CP321P00803
146	L505	COIL	CHOKE 2.2MH 1.9A	CP321P50101
147	L103, 104	COIL	PEAKING 12MH-K	CP325P03204
148	L107	COIL	PEAKING 15MH-K	CP325P03205
149	L105	COIL	PEAKING 22MH-K	CP325P03207
150	L106, 108	COIL	PEAKING 39MH-K	CP325P03300
151	L5E2	COIL	HORIZONTAL LINEARITY	CP333P50501

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152	L5E1, 5E3	COIL	HORIZONTAL LINEARITY	CP333P50502
153	LC101, 102	COIL	DIS	CP349P50101
154	LC103	COIL	BEL	CP349P50201
155	LC104	COIL	REF	CP349P50301
156	L109	COIL	DL	CP349P50401
157	L110	COIL	TANK	CP349P50501
158	L901, 902, 960	FILTER	CHOKE 1.0-18T	CP351P51102
159	L903, 904	FILTER	CHOKE	CP351P51201
160	L919, 923, 924	LINE FILTER	SBC-04	CP351P51501
161	L920, 921, 922	LINE FILTER	SBC-34	CP351P51502
	L925	LINE FILTER	SBC-34	CP351P51502
162	L918, 953, 966	LINE FILTER	SBC8-101	CP351P51601
163	L950	COIL	CHOKE 560MH	CP409P01701
164	L951	COIL	CHOKE 500MH	CP409P50701
165	L111, 112, 113	CORE FERRITE	ZBF506D-00	CP410D00201
	L115, 141, 142	CORE FERRITE	ZBF506D-00	CP410D00201
	L2B1, 2B2, 2B3	CORE FERRITE	ZBF506D-00	CP410D00201
	L2G1, 2G2, 2G3	CORE FERRITE	ZBF506D-00	CP410D00201
	L2R1, 2R2, 2R3	CORE FERRITE	ZBF506D-00	CP410D00201
	L507, 6B2, 6G2	CORE FERRITE	ZBF506D-00	CP410D00201

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	L6R2, 606, 607	CORE FERRITE	ZBF506D−00	CP410D00201
	L608, 609, 610	CORE FERRITE	ZBF506D−00	CP410D00201
166	L123, 124, 125	CORE FERRITE	ZBF503D−00	CP410D00202
	L137, 140, 201	CORE FERRITE	ZBF503D−00	CP410D00202
	L906, 908, 909	CORE FERRITE	ZBF503D−00	CP410D00202
	L910, 911, 912	CORE FERRITE	ZBF503D−00	CP410D00202
	L913, 914, 915	CORE FERRITE	ZBF503D−00	CP410D00202
	L916, 917, 952	CORE FERRITE	ZBF503D−00	CP410D00202
	L961, 962, 963	CORE FERRITE	ZBF503D−00	CP410D00202
	L965	CORE FERRITE	ZBF503D−00	CP410D00202
167	L138	FILTER	TP−80M	CP410P50101
168	L114	FILTER	TP−100M	CP410P50102
169	L139	FILTER	TH43253MA	CP410P50209
170	L905, 907	CORE FERRITE	BL02RN2−R62	CP411D00101
171	L200	COIL	PEAKING 8.2MH−K	QX325C11102
172	L136	COIL	PEAKING 27MH−K	QX325C11108
173	L131	COIL	PEAKING 56MH−K	QX325C11202
174	L6R3, 6B3, 6G3	COIL	PEAKING 0.47MH−M	QX325C11407
175	L121, 122, 401	COIL	フィルター 27MHK	QX409P00603
	L402, 403, 501	COIL	フィルター 27MHK	QX409P00603

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	L504	COIL	FILTER 27MHK	QX409P00603
176	L502	COIL	CHOKE 500MA 2.0MH	RX409D52701
177	R911, 914	RESISTOR	CEMENT WIRE 5W 22K	CP102P02001
178	R1P9, 988	RESISTOR	METAL-S 1/4W 470-F	CP103P06401
179	R9F5	RESISTOR	METAL-S 1/4W 1.5K-F	CP103P06503
180	R1U0	RESISTOR	METAL-S 1/4W 1.6K-F	CP103P06504
181	R1Q0, 969	RESISTOR	METAL-S 1/4W 1.8K-F	CP103P06505
182	R494, 530	RESISTOR	METAL-S 1/4W 2K-F	CP103P06506
183	R9A9	RESISTOR	METAL-S 1/4W 2.2K-F	CP103P06507
184	R5C1	RESISTOR	METAL-S 1/4W 2.4K-F	CP103P06508
185	R497	RESISTOR	METAL-S 1/4W 2.7K-F	CP103P06509
186	R9F9	RESISTOR	METAL-S 1/4W 3.3K-F	CP103P06601
187	R942	RESISTOR	METAL-S 1/4W 4.3K-F	CP103P06604
188	R9C7, 9F2	RESISTOR	METAL-S 1/4W 4.7K-F	CP103P06605
189	R997	RESISTOR	METAL-S 1/4W 6.2K-F	CP103P06608
190	R585	RESISTOR	METAL-S 1/4W 6.8K-F	CP103P06609
191	R9B0	RESISTOR	METAL-S 1/4W 8.2K-F	CP103P06701
192	R532	RESISTOR	METAL-S 1/4W 9.1K-F	CP103P06702
193	R527, 559, 971	RESISTOR	METAL-S 1/4W 10K-F	CP103P06703

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	R9A8	RESISTOR	METAL-S 1/4W 10K-F	CP103P06703
194	R415	RESISTOR	METAL-S 1/4W 15K-F	CP103P06707
195	R990	RESISTOR	METAL-S 1/4W 16K-F	CP103P06708
196	R593, 927, 937	RESISTOR	METAL-S 1/4W 18K-F	CP103P06709
	R945, 946	RESISTOR	METAL-S 1/4W 18K-F	CP103P06709
197	R994	RESISTOR	METAL-S 1/4W 22K-F	CP103P06801
198	R564, 941	RESISTOR	METAL-S 1/4W 33K-F	CP103P06805
199	R441	RESISTOR	METAL-S 1/4W 56K-F	CP103P06901
200	R416, 445	RESISTOR	METAL-S 1/4W 68K-F	CP103P06903
201	R989	RESISTOR	METAL-S 1/4W 82K-F	CP103P06905
202	R577	RESISTOR	METAL-S 1/4W 120K-F	CP103P07003
203	R435	RESISTOR	METAL-S 1/4W 150K-F	CP103P07005
204	R970, 998	RESISTOR	METAL-S 1/4W 270K-F	CP103P07101
205	R494, 565	RESISTOR	METAL-S 1/4W 300K-F	CP103P07102
206	R9A3	RESISTOR	METAL-S 1/4W 330K-F	CP103P07103
207	R9A7	RESISTOR	METAL-S 1/4W 1M-F	CP103P07205
208	R907, 908	RESISTOR	CEMENT WIRE 5W 0.68-K	CP109D00306
209	R902	RESISTOR	CEMENT WIRE 10W 12-K/J	QX102P08309
210	R4C9, 524, 526	RESISTOR	FUSE 1/4W 1.0-J	QX103P37800
211	R525	RESISTOR	FUSE 1/4W 5.6-J	QX103P37809

RECOMMENDED SERVICE PARTS AND PRICE LIST

MODEL NO. : XC--3725C

ISSUE

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ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION		PART NO.
212	R9C5	RESISTOR	FUSE 1/2W 1.2—J	QX103P39801
213	R601	RESISTOR	FUSE METAL 2W 2.2—K / J	QX103P43804
214	R954	RESISTOR	FUSIBLE 1/2W 0.27—K	RX109P50101
215	VR101, 102	VARIABLE RESISTOR	SEMIFIXED 1/10W B—500	CP127C00104
216	VR103, 104, 105	VARIABLE RESISTOR	SEMIFIXED 1/10W B—1K	CP127C00105
	VR106	VARIABLE RESISTOR	SEMIFIXED 1/10W B—1K	CP127C00105
217	VR110, 111, 112	VARIABLE RESISTOR	SEMIFIXED 1/10W B—2K	CP127C00106
	VR113	VARIABLE RESISTOR	SEMIFIXED 1/10W B—2K	CP127C00106
218	VR501	VARIABLE RESISTOR	SEMIFIXED 0.3W 1K ± 25%	CP129C51003
219	VR502	VARIABLE RESISTOR	SEMIFIXED 0.3W 10K ± 25%	CP129C51005
220	C525, 527, 539	CAPACITOR ELECTROLYTIC	25V 10M—M	CP181P03002
	C543, 544, 5H0	CAPACITOR ELECTROLYTIC	25V 10M—M	CP181P03002
	C559	CAPACITOR ELECTROLYTIC	25V 10M—M	CP181P03002
221	C502, 541	CAPACITOR ELECTROLYTIC	25V 47M—M	CP181P03005
222	C501, 506, 508	CAPACITOR ELECTROLYTIC	50V 1M—M	CP181P03200
	C524, 533, 535	CAPACITOR ELECTROLYTIC	50V 1M—M	CP181P03200
	C545, 5G6, 5G9	CAPACITOR ELECTROLYTIC	50V 1M—M	CP181P03200
223	C538	CAPACITOR ELECTROLYTIC	50V 4.7M—M	CP181P03203

MODEL NO. : XC-3725C

ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION	PART NO.
224	C514	CAPACITOR ELECTROLYTIC 50V 10M-M	CP181P03204
225	C517	CAPACITOR ELECTROLYTIC 50V 47M-M	CP181P03207
226	C552	CAPACITOR ELECTROLYTIC 100V 47M-M	CP181P03409
227	C510, 511	CAPACITOR ELECTROLYTIC 25V 100M-M	CP181P04006
228	C513	CAPACITOR ELECTROLYTIC 50V 10M-M	CP181P04204
229	C5G1	CAPACITOR ELECTROLYTIC 50V 100M-M	CP181P04208
230	C553	CAPACITOR ELECTROLYTIC 100V 47M-M	CP181P04404
231	C556, 9B1, 931	CAPACITOR ELECTROLYTIC 100V 100M-M	CP181P04405
232	C554, 555	CAPACITOR ELECTROLYTIC 200V 100M-M	CP181P04703
233	C9B0, 930, 961	CAPACITOR ELECTROLYTIC H200V 220M-M	CP185P50101
234	C911, 912	CAPACITOR ELECTROLYTIC 250V 1200MF	CP185P50401
235	C526	CAPACITOR ELECTROLYTIC 25V 4.7M-M	QX181P12205
236	C548	CAPACITOR ELECTROLYTIC 50V 1M-M	QX181P12308
237	C537	CAPACITOR ELECTROLYTIC 35V 100M-M	QX181P20406
238	C522	CAPACITOR ELECTROLYTIC 16V 22M-M	QX181P21204
239	C507	CAPACITOR ELECTROLYTIC 16V 1000M-M	QX181P26301
240	C521	CAPACITOR ELECTROLYTIC 16V 2200M-M	QX181P26302
241	AG6B1, 6G1, 6R1	SURGE ABSORBER DSP-301N	CP252P00101
	AG602	SURGE ABSORBER DSP-301N	CP252P00101

ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION		PART NO.
242	AG601	SURGE ABSORBER	DSA-302MA	CP252P50101
243	TH200	THERMISTOR	NTH5D103JA	CP265P00802
244	TH901, 902	THERMISTOR	NTH5051	CP265P50801
245	C909	VARISTOR	AVR-G09D471K	CP265P05001
246	RP902	POSISTOR	PTH451A92BF5R0M144	CP265P01301
247	RP901	POSISTOR	PTH451A12BD180M290	CP265P01303
248	X102	CRYSTAL	3.579545MHZ	CP285P00301
249	X103	CERALOCK	CSB503F2	CP285P50501
250	X200	CERAMIC RESONATOR	CSA 8.00MT	CP296P00104
251	X101	QUARTZ CRYSTAL	4.43MHZ	QX285P01101
252	RL5E1	RELAY	POWER VS 12MB-VD3	CP287C00101
253	RL301	RELAY	VE 12HM-K-UL	CP287P00501
254	RL200, 201, 202	RELAY	RY-5W	CP287P50101
	RL203, 204, 205	RELAY	RY-5W	CP287P50101
	RL206	RELAY	RY-5W	CP287P50101
255	RE101	REMOCON RELAY	RRL9000-0101	CP290P50201
256	DL101, 104	DELAY-LINE	1.5K 0.45M	CP337P50101
257	DL105	DELAY-LINE	1K 0.1M BW=2M	CP337P50201
258	DL106	DELAY-LINE	1K 0.1M BW=4M	CP337P50301
259	DL103	DELAY-LINE	1.5K 0.35M	QX337P02604

ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION		PART NO.
260	DL102	DELAY-LINE	PDL-643K DUAL	QX337P06501
261	S124, 201, 202	SLIDE SWITCH		CP431C00701
	S203, 204, 205	SLIDE SWITCH		CP431C00701
262	S121, 122, 123	SLIDE SWITCH		CP431C50201
263	S101, 102, 103	TACT SWITCH		CP439P00603
	S104, 105, 106	TACT SWITCH		CP439P00603
	S107, 108, 109	TACT SWITCH		CP439P00603
	S110, 111, 112	TACT SWITCH		CP439P00603
264	F902	FUSE	SSFR 1A	CP283P00104
265	F301	FUSE	SSFR 4A	CP283P00504
266		FUSE	6.0A 250V	CP283P00901
267		FAN		CP299P50101
268		COIL UNIT (CANCEL & DEGAUSSING)		CP409B00801
269		REMOCON		CP939P00303
270		AC POWER JACK (3P)		CP246C16202
271		POWER SWITCH		CP246C16301
272		VOLTAGE SELECT SWITCH		CP246C16401

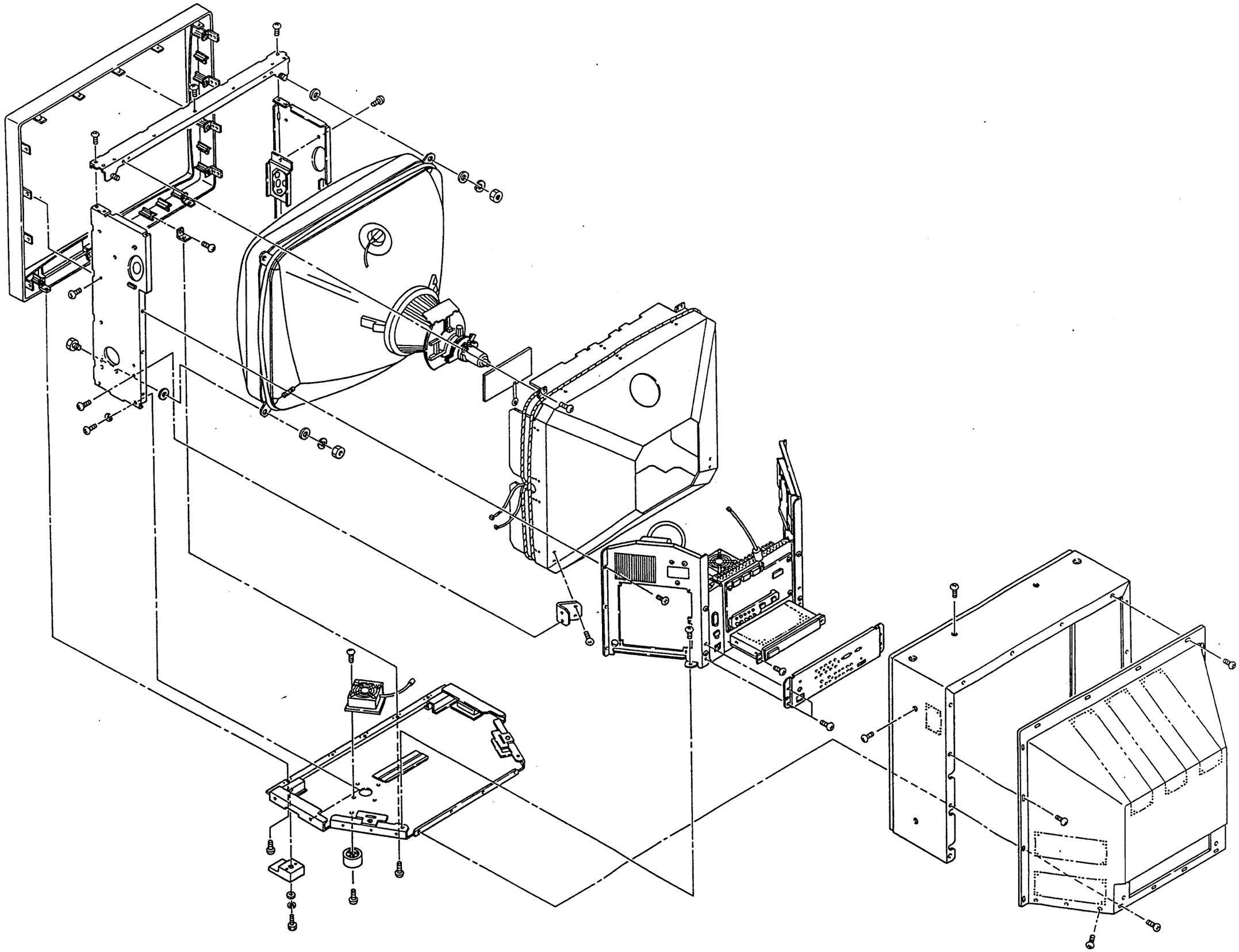
RECOMMENDED SERVICE PARTS AND PRICE LIST

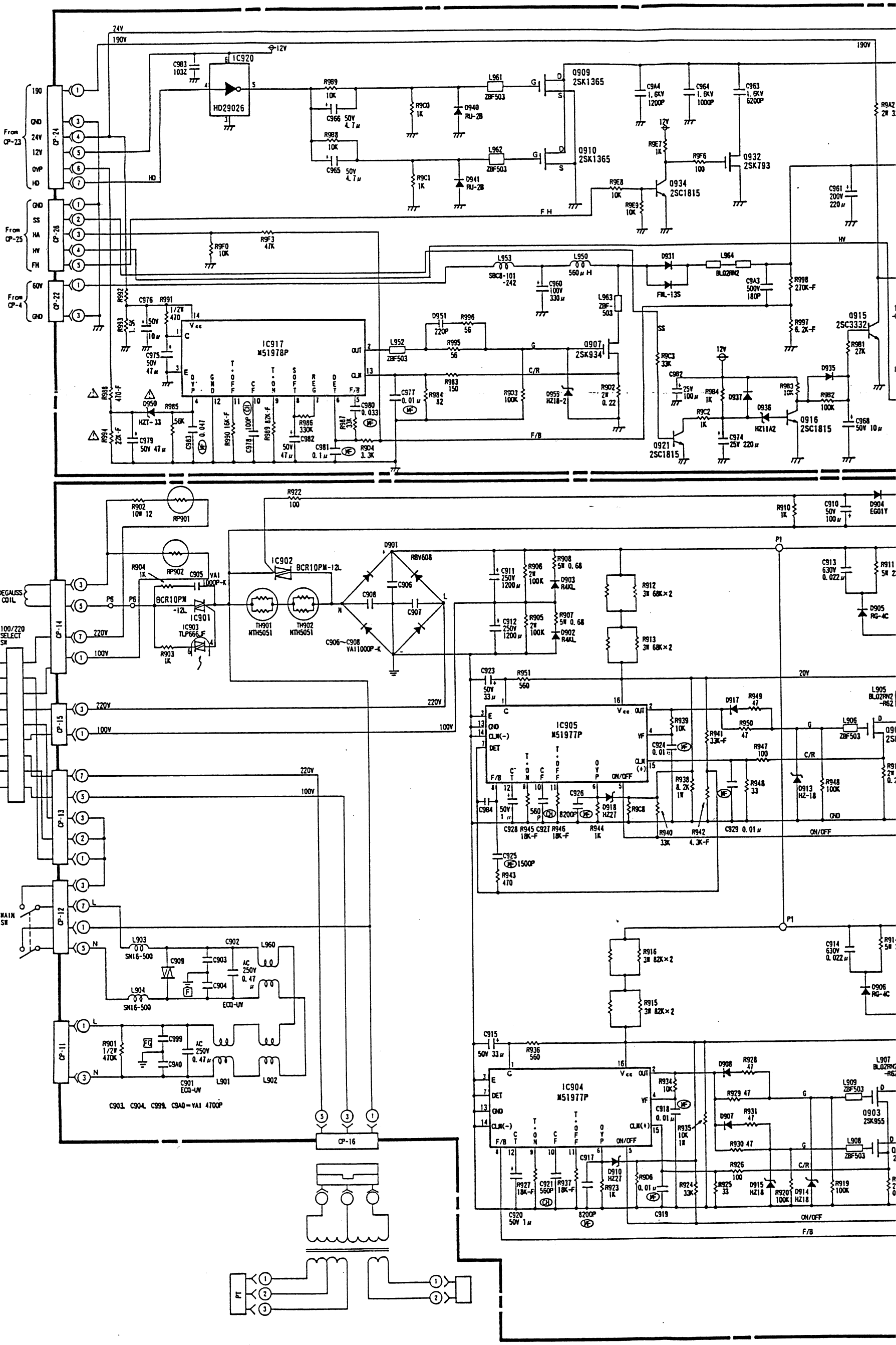
MODEL NO. : XC-3725C

ISSUE

PAGE

ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION	PART NO.
273		SPEAKER	CP480C00101
274		FRONT PANEL	CP700B01204
275		CABINET	CZ629A02501
276		BACK COVER	CZ629A02601
277		FRONT FOOT	CP771B00201
278		REAR FOOT	CP771C00801
279		CONNECTOR PANEL	CZ593C11801
280		ASSY PCB VIDEO	CT920B19501
281		ASSY PCB SCAN	CT920B19801
282		ASSY PCB CONNECTOR	CT920D93008
283		ASSY PCB POWER	CT920B19401
284		ASSY PCB SUB-T901	CT920D93001
285		ASSY PCB SUB-T902	CT920D93002
286		ASSY PCB DEFL	CT920B19601
287		ASSY PCB DEFL-OUT	CT920D93003
288		ASSY PCB DEFL-V	CT920D93004
289		ASSY PCB CRT	CT920B19701
290		ASSY PCB FBT	CT920D93005




24V
190V
12V
IC920
HD29026
C983 103Z
R989 10K
C966 50V 4.7μ
R988 10K
C965 50V 4.7μ
R9C0 1K
R9C1 1K
D940 RU-2B
D941 RU-2B
L961 ZBF503
L962 ZBF503
Q909 2SK1365
Q910 2SK1365
C9A4 1.6KV 1200P
C964 1.6KV 1000P
C963 1.6KV 6200P
R9E7 1K
R9F6 100
Q932 2SK793
Q934 2SC1815
R9E8 10K
R9E9 10K
C961 200V 220μ
R9A2 2W 3
From CP-23
190
GND
24V
12V
OVP
HD
CP-24
From CP-25
GND
SS
HA
HV
FH
CP-26
From CP-4
60V
GND
CP-22
R9F0 10K
R9F3 47K
F.H
HV
L953 SBC8-101 -242
L950 560μH
C960 100V 330μ
D931 FML-13S
L964 BL02RN2
C9A3 500V 180P
R998 270K-F
R997 6.2K-F
SS
R992
C976
R991 1/2W 470
R993 1.5K
50V 10μ
C975 50V 47μ
IC917 M51978P
Vcc
OUT
CLK
F/B
OVP
GND
T.OFF
CT
T.ON
SOFT
REG
DET
L952 ZBF503
D951 220P
R996 56
R995 56
Q907 2SK934
C/R
R983 150
R984 82
R903 100K
D955 HZ18-2
R902 2W 0.22
C977 0.01μ
R9C3 33K
C982 25V 100μ
R984 1K
R9C2 1K
D937
D936 HZ11A2
R983 12K
R982 100K
D935
R981 27K
Q915 2SC3332
Q916 2SC1815
C974 25V 220μ
C968 50V 10μ
Q921 2SC1815
R988 470-F
R994 22K-F
D950 HZT-33
R985 56K
C979 50V 47μ
C983 0.047
R990 16K-F
C978 100P
R989 62K-F
C982 50V 47μ
R988 330K
R987 33K
C980 0.033
C981 0.1μ
R904 3.3K
C980 0.033
F/B

R902 10W 12
RP901
RP902
R904 1K
C905 VA1 1000P-K
IC902 BCR10PM-12L
IC901 BCR10PM -12L
IC903 TLP666_F
R903 1K
TH901 NTH5051
TH902 NTH5051
D901 RBV608
C906 C907 C908
C906~C908 VA11000P-K
R922 100
R910 1K
C910 50V 100μ
D904 EG01Y
C911 250V 1200μ
C912 250V 1200μ
R906 2W 100K
R905 2W 100K
R908 5W 0.68
R907 5W 0.68
D903 RAKL
D902 RAKL
R912 3W 68K×2
R913 3W 68K×2
C913 630V 0.022μ
D905 RG-4C
P1
DEGAUSS COIL
100/220 SELECT SW
MAIN SW
220V
100V
CP-14
CP-15
CP-13
CP-12
CP-11
CP-16
L903 SN16-500
L904 SN16-500
C902
C903
C904
C909
AC 250V 0.47μ
ECQ1-UV
L960
R901 1/2W 470K
C999
C9A0
C901 ECQ1-UV
L901
L902
C903. C904. C999. C9A0=VA1 4700P
C923 50V 33μ
R951 560
IC905 M51977P
Vcc
OUT
VF
CLK(+)
CLK(-)
GND
DET
F/B
CT
T.ON
CF
T.OFF
OVP
ON/OFF
R939 10K
R941 33K-F
D917
R949 47
R950 47
L906 ZBF503
R947 100
C/R
D913 HZ-18
R948 100K
GND
C924 0.01μ
C926
8200P
D918 HZ27
R9C8
R938 8.2K 1W
R948 33
C984 50V 1μ
C928 R945 18K-F
C927 560P
R946 18K-F
R944 1K
C929 0.01μ
R940 33K
R942 4.3K-F
ON/OFF
C925 1500P
R943 470
R916 3W 82K×2
R915 3W 82K×2
C914 630V 0.022μ
D906 RG-4C
C915 50V 33μ
R936 560
IC904 M51977P
D908 R928 47
R929 47
D907 R931 47
R930 47
L909 ZBF503
L908 ZBF503
Q903 2SK955
R934 10K
R935 10K 1W
C918 0.01μ
C917
D910 HZ27
R923 1K
R9D6
0.01μ
R924 33K
R925 33
D915 HZ18
R920 100K
D914 HZ18
R919 100K
R926 100
C/R
C927 R946 18K-F
C921 560P
R937 18K-F
C920 50V 1μ
8200P
C919
ON/OFF
F/B

MODEL:XC-3725C

POWER CIRCUIT

※ 指定ナキ抵抗ハR-C 1/4W, ダイオードハ 1S2076/1S2471, トランジスタハ 2SC1815デアル。

記錄

DWG NO.

CHANGE

PCB-CRT CC 7

CANSEL COIL — CD6

CD2: GND, V-PAR, H-PAR, 12V

CD1: DA-D1, DA-L1, DA-D2, DA-C, DA-L2, GND, HD, D-OUT, GND, VD, GND, V-OUT, BLK, FBP

PCB-VIDEO CV 3

PCB-POWER CP 3

CD3: HD, GND, GND, 24V, 28V, 12V, OVP, X-PRO, 190V

PCB-POWER CP 21

CD4: GND, 60V

CD5, CD9, CD10

DS01 TVRIG/ES-1

ICS02 mPD6326C

ICS03 MS223L

ICS04 MS223L

ICS06 LS123

ICS07 MS1978P

ICS08 TL431

T501

L401 27M

L501 27M

L502

L503 22M

L504 27M

L505 7.2-H

L506

L507 ZBFS06D

DS10 RP1H

DS11 RP1H

DS12 TVR1G/ES-1

DS13 TVR1G/ES-1

DS14 SS500-D/EM-1Z/ERG12-02RK

DS16 SS500-D/EM-1Z/ERD12-02RK

DS17

DS18

DS19

DS20

DS21

DS25

DS26

DS27

DS29 HZ16-2

DS502 HZ3B2

DS503

DS504

DS505 HZSC1

DS506

DS507 HZ16-2

DS508 TVR1G/ES-1

DS509 TVR1G/ES-1

Q501 2SD2012

Q502 2SA1321

Q503 2SK934

Q504 2SD921

Q505

Q506

Q507 2SD2012

Q508

Q509 2SA1321

Q510 2SC3620

Q511 2SB1375

Q512 2SD2012

Q513 2SC2482

Q514

Q515

Q517

Q518 2SD2012

Q519 2SB1375

Q520

Q521 2SC2482

Q522

Q523 2SK934

Q412 2SC2317

Q413 2SD921

RS85 1/2W 33

RSC5 100K

RS97 1K

RSA0 27K

RSA5 1W 47

RS86 10

CS59 50V 10M

CS35 50V 10M

RS53 1K

RSC0 10K

RS60 47K

RSA1 10K

RS62 680K

RS61 820K

RSA2 10K

RS58 3.3K 4.7K

RS56 10K

RS54 4.7K

RS55 10K

RS57 3.3K

RS43 100

RS42 100

RS41 100

RS39 10K

CS26 25V 4.7M

CS27 25V 10M

RS38 6.8K

RS65 27K

VR502 10K

VR501 1K

RS37 6.8K

RS28 12K

RS29 10K

CS18 50V J-1000

CS20 50V J-.01

CS15 50V J-1000

CS19 50V J-6800

RSC8 10

CS22 16V 22M

CS47 50V ±-.01

RS64 F-33K

RS65 F-300K

RS59 F-10K

CS46 50V 1M

RS74 10K

CS25 25V 10M

RS71 27K

RS74 10K

RS81 1K

RS83 4.7K

RS82 6.8K

RS80 150K

CS34 50V 3300

RSA6 1.5K

RSA8 560

RS87 27K

RS98 100

RS52 10K

RSA7 2.2K

RSA4 150K

CS33 50V 1M

RSA9 1.5K

RSA3 560

RS44 100K

RS51 10K

RS08 1.5K

CS09 50V ±-3300

CS03 50V ±-.01

RS17 68K

RS15 1K

RS06 220

RS05 1.5K

CS04 50V ±-.01

RS07 4.7K

RS12 15K

RS1 120K

RS10 10K

RS13 1K

RS14 330

HZSC1

CS02 25V 47M

RSC4 680

RS04 56K

RS03 33K

RS02 10K

CS01 50V 1M

RS09 1K

CS05 50V ±-.01

CS06 50V 1M

RS45 10K

RS73 1K

RS72 15K

RSC6 1K

CS39 25V 10M

RS27 F-10K

CS13 50V 10M

CS36 50V 100

RS89 1K

RS26 1

RS25 5.6

CS12 2K 4700

RS21 2.2K

RS19 2W 68K

LS02

RS22 3W 22

RS20 2W 6.8K

RS16 10K

CS08 50V 1M

RS18 2.2K

CS58 50V

CS10 25V 100M

RS24 1

RS23 3.3K

CS11 25V 100M

RS82 6.8K

RS83 4.7K

RS80 150K

CS34 50V 3300

RSA6 1.5K

RSA8 560

RS87 27K

RS98 100

RS52 10K

RSA7 2.2K

RSA4 150K

CS33 50V 1M

RSA9 1.5K

RSA3 560

RS44 100K

RS51 10K

RS576 270K

RS75 82K

RS77 F-120K

LS04 27M

CS48 50V Z-.01

RS92 47K

CS46 50V G-1200

RS93 F-18K

CS37 35V 100M

CS45 50V 1M

CS38 50V F-4.7M

RS65 F-68K

RS91 2.2K

RS90 10K

RS94 100K

RS88 100

RS62 100

RS87 560

CS41 25V 47M

RS86 1.2K

RS77 2.2K

RSC2 1K

CS44 25V 10M

RS84 18K

RS83 47K

CS53 100V 47M

CS51 25V 33M

RS80 1K

RS79 1K

CS56 100V 100M

CS52 100V 47M

RS75 33

RS96 100K

RS81 1W 0.22

CS55 200V 100M

CS54 200V 100M

C441 200V 22M

R469 1/2W 220

R468 1/2W 220

CS57 DHS 200V J-2.2M

R466 2W 39K

R467 3.3K

R471 1/2W 220

R470 4.7K

CS36 50V 100

RS89 1K

RS26 1

RS25 5.6

CS12 2K 4700

CS09

CD10

CSF3 CSF4 CSF5 1800V J-2700

CSF7 CSF3 CSF4 1800V J-4300

RSF9 1/2W 470

LSE1

CSF6 1600V J-3900

LSE3

LSE2 RLSE1

CSG5 500V 220

CSH1 LHG 400V J-.068

CSF0 CSF1 CSF2

CSE9 CSF0 CSF1 CSF2 LHG 400V J-.082

OSE7 3SK79

OSE1 HZ16-2

OSE 2SK52

IC50 TA78L005

L401 27M

C409 16V 330M

RS74 10K

RS87 27K

RS98 100

DS22

DS23

RS52 10K

RS44 100K

RS51 10K

RS89 1K

RS26 1

RS25 5.6

CS12 2K 4700

CS36 50V 100

RS89 1K

CD9

CD10

CSF3 CSF4 CSF5 1800V J-2700

CSF7 CSF3 CSF4 1800V J-4300

RSF9 1/2W 470

LSE1

CSF6 1600V J-3900

LSE3

LSE2 RLSE1

CSG5 500V 220

CSH1 LHG 400V J-.068

CSF0 CSF1 CSF2

CSE9 CSF0 CSF1 CSF2 LHG 400V J-.082

OSE7 3SK79

OSE1 HZ16-2

OSE 2SK52

WRONG_NMR_OF_PARAMS

IC505 ANS790N

IC406 mPD6326

IC407 TDA1670A

IC403 M5223L

IC404 M5207L05

IC405 M5223L

IC402 M5223L

IC401 mPD6326

IC501 LS221

CD8 CD14 CD13 CD5 CD7 CD12 CD15 CD11

24V V VCC GND V-R

PCB-CRT CC6

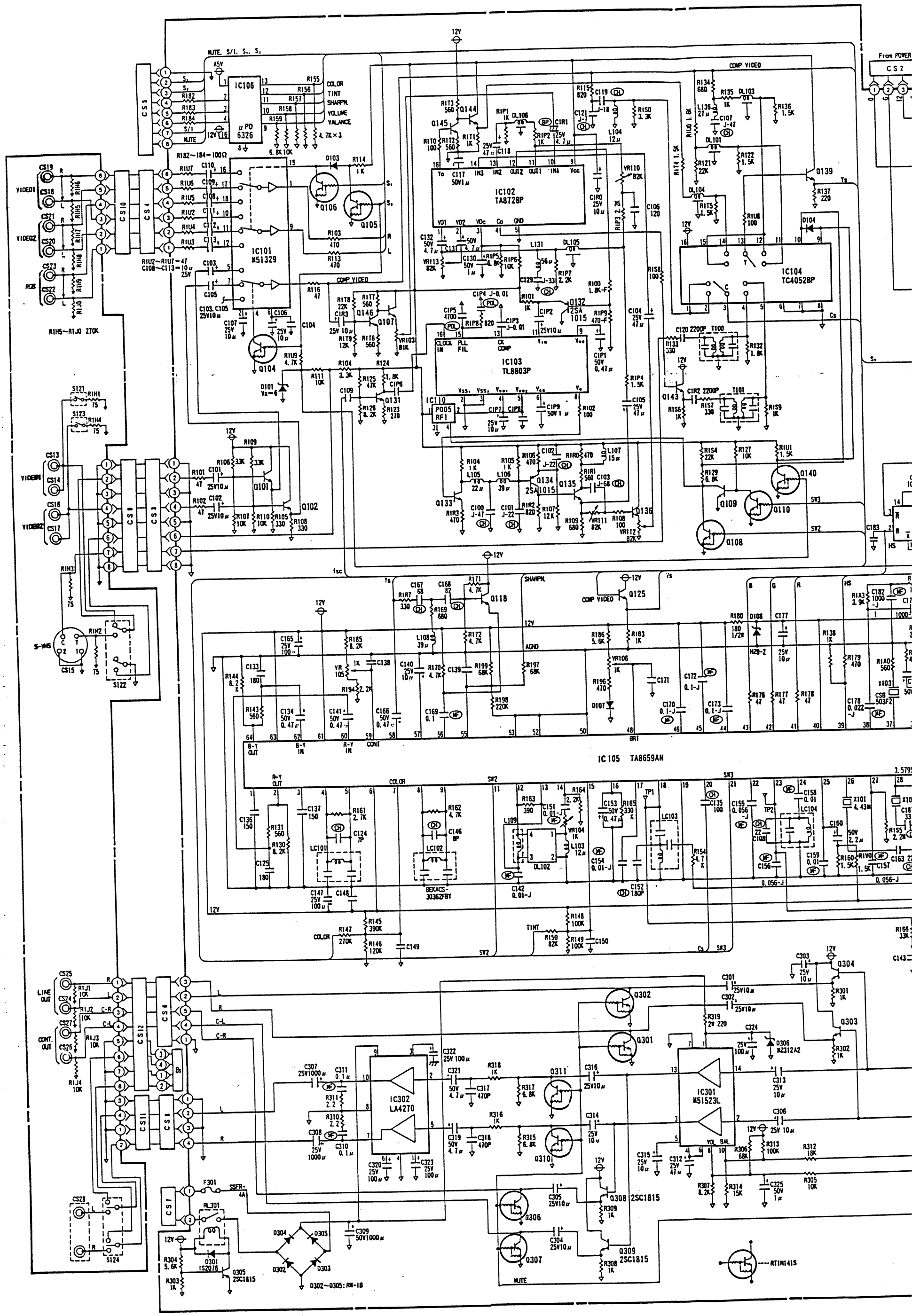
PCB-VIDEO CV2

150V V-OUT V-DY V-R 12V CS4 CS3 CS2 CS1 GND

⚠ CRITICAL COMPONENT

指示ナキPNPトランジスタハ 2SA1015
〃 NPN 〃 2SC1815
〃 ダイオードハ 1S2076A/1S2471

控	MITSUBISHI ELECTRIC CORPORATION	XC-3725C (DEFL)	
出図用	NAGASAKI WORKS	TITLE	
外注用		SCHEMATIC DIAGRAM	
計画			REV
	DIM. IN mm	DATE	APPROVED
	SCALE : NTS	DRAWN 坂東	CP980B518
		CHECKED 一ノ瀬	
		DESIGNED 坂東	


IC101 M51329
IC102 TA8728P
IC103 TL8803P
IC104 TC40528P
IC105 TA8659AN
IC106 μPD 6326
IC110 PQ05 RF1
IC301 M51523L
IC302 LA4270
Q101
Q102
Q104
Q105
Q106
Q107
Q108
Q109
Q110
Q118
Q125
Q132
Q134
Q135
Q136
Q139
Q140
Q143
Q144
Q145
Q146
Q301
Q302
Q303
Q304
Q306
Q307
Q308 2SC1815
Q309 2SC1815
Q310
Q311
Q131
Q133
D101 Vz=6
D103
D104
D107
D108 HZ9-2
D301 1SZ076
D302~D305: RM-1B
RT1N141S
12V
5V
COMP VIDEO
SHARPN
COLOR
TINT
VOLUME
VALANCE
MUTE
S/I
BRT
CONT
AGND
fsc
From POWER
VIDEO1
VIDEO2
VIDEO3
VIDEO4
S-VHS
RGB
LINE OUT
CONT. OUT
S122
S123
S124
S121
R182~184=100Ω
R1H5~R1J0 270K
R1U2~R1U7=47
C108~C113=10μ 25V
C103. C105 25V10μ
C120 2200P T100
C121 J-7
C107 J-47
C118
C119
C129 J-33
C130 50V 1μ
C131 50V 4.7μ
C132 50V 4.7μ
C133 180
C134 50V 0.47μ
C135 100
C136 150
C137 150
C138
C139
C140 25V 10μ
C141 50V 0.47μ
C142 0.01-J
C143
C144
C145
C146 8P
C147 25V 100μ
C148
C149
C150
C151 0.01-J
C152 180P
C153 50V 0.47μ
C154 0.01-J
C155 0.056-J
C156
C157
C158 0.01
C159 0.01
C160 50V 2.2μ
C161
C162
C163
C164
C165 25V 100μ
C166 50V 0.47μ
C167 68
C168 82
C169 0.1
C170 0.1-J
C171
C172 0.1-J
C173 0.1-J
C174
C175
C176
C177
C178 0.022-J
C179
C180
C181
C182 1000-J
C183
C301 25V10μ
C302 25V10μ
C303 25V 10μ
C304 25V10μ
C305 25V10μ
C306 25V 10μ
C307 25V1000μ
C308 25V 1000μ
C309 50V1000μ
C310 0.1μ
C311 0.1μ
C312 25V 47μ
C313 25V 10μ
C314 25V 10μ
C315 25V 10μ
C316 25V10μ
C317 470P
C318 470P
C319 50V 4.7μ
C320 25V 100μ
C321 50V 4.7μ
C322 25V 100μ
C323 25V 100μ
C324 25V 100μ
C325 50V 1μ
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R1U2 1.5K
R1U3 1.5K
R1U4 1.5K
R1U5 1.5K
R1U6 1.5K
R1U7 1.5K
R1U8 100
R1U9 4.7K
R1UA 1.5K
R1UB 1.5K
R1UC 1.5K
R1UD 1.5K
R1UE 1.5K
R1UF 1.5K
R1UG 1.5K
R1UH 1.5K
R1UI 1.5K
R1UJ 1.5K
R1UK 1.5K
R1UL 1.5K
R1UM 1.5K
R1UN 1.5K
R1UO 1.5K
R1UP 1.5K
R1UQ 1.5K
R1UR 1.5K
R1US 1.5K
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R1UU 1.5K
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R1UW 1.5K
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R1UY 1.5K
R1UZ 1.5K
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R305 10K
R306 68K
R307 8.2K
R308 1K
R309 1K
R310 2.2
R311 2.2
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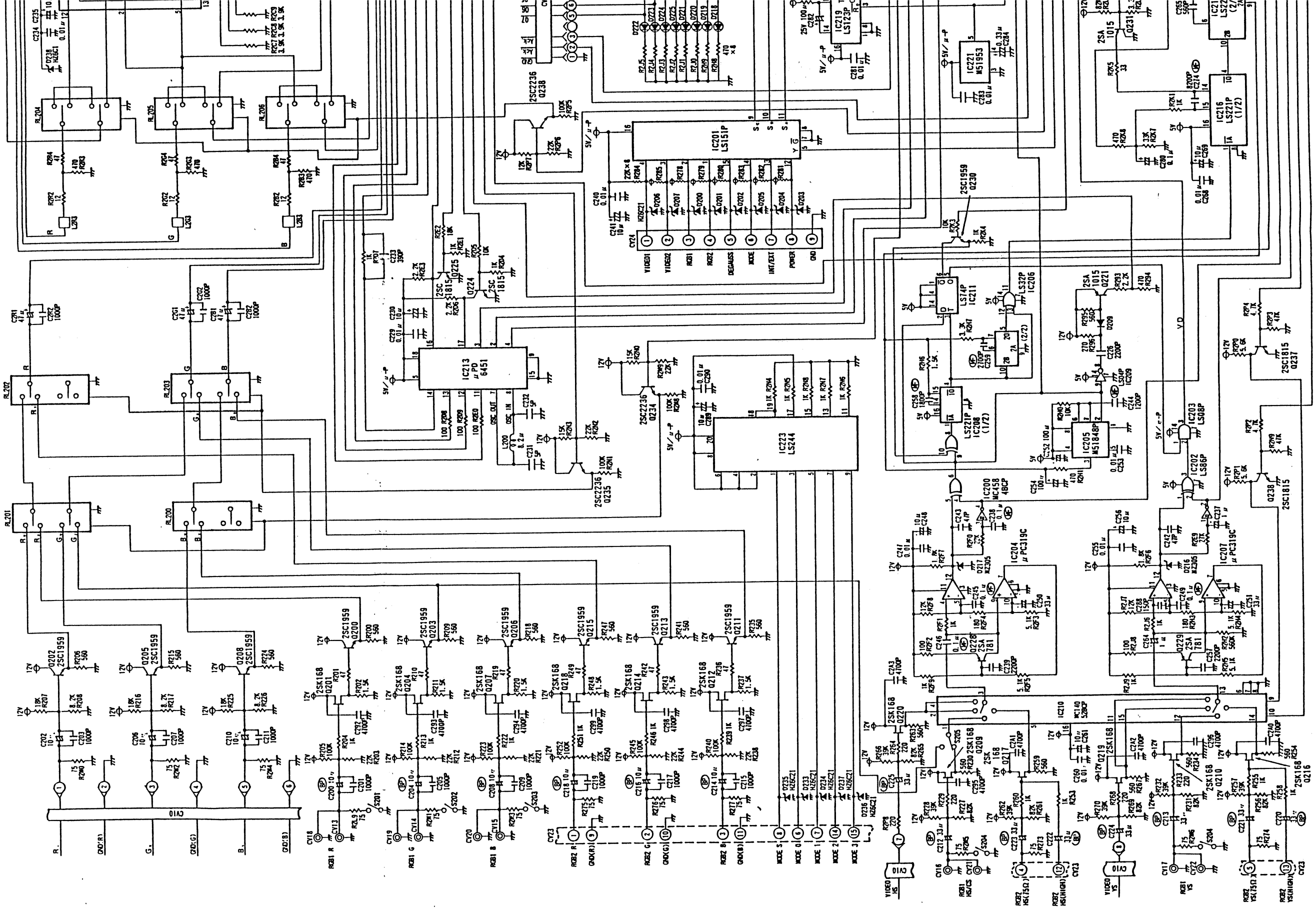
R313 100K
R314 15K
R315 6.8K
R316 1K
R317 6.8K
R318 1K
R319 2W 220
CS1
CS2
CS3
CS4
CS5
CS6
CS7
CS8
CS9
CS10
CS11
CS12
CS13
CS14
CS15
CS16
CS17
CS18
CS19
CS20
CS21
CS22
CS23
CS24
CS25
CS26
CS27
CS28
F301 SSFR-4A
RL301
L101
L102
L103 12μ
L104 12μ
L105 22μ
L106 39μ
L107 15μ
L108 39μ
L109
L131
L136 27μ
DL101
DL102
DL103
DL104
DL105
DL106
LC101
LC102
LC103
LC104
T100
T101
X101 4.43M
X103 CS8 503F2
TP1
TP2
SW2
SW3
BEKACS-30362F-BY
S-VHS
Ys
Cs
HS
YCL BAL
MUTE
0302~0305: RM-1B

MODEL: XC-3725C

VIDEO. SCAN CIRCUIT


IC201 LS151P
IC213 μPD 6451
IC223 LS244
IC221 MS1953
IC219 LS123P
IC216 LS221P (1/2)
IC214 LS14P
IC211 LS14P
IC208 LS221P (1/2)
IC205 MS1848P
IC202 LS86P
IC203 LS08P
IC204 μPC319C
IC207 μPC319C
IC210 SC140 5286P
CY10
CY24
RGB1 R
RGB1 G
RGB1 B
RGB2 R
RGB2 G
RGB2 B
MODE S
MODE 0
MODE 1
MODE 2
MODE 3
VIDEO YS
RGB1 YS
RGB2 YS(SYNC)
RGB2 YS(HIGH)
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RL201
RL202
RL203
RL204
RL205
RL206
S200
S201
S202
S203
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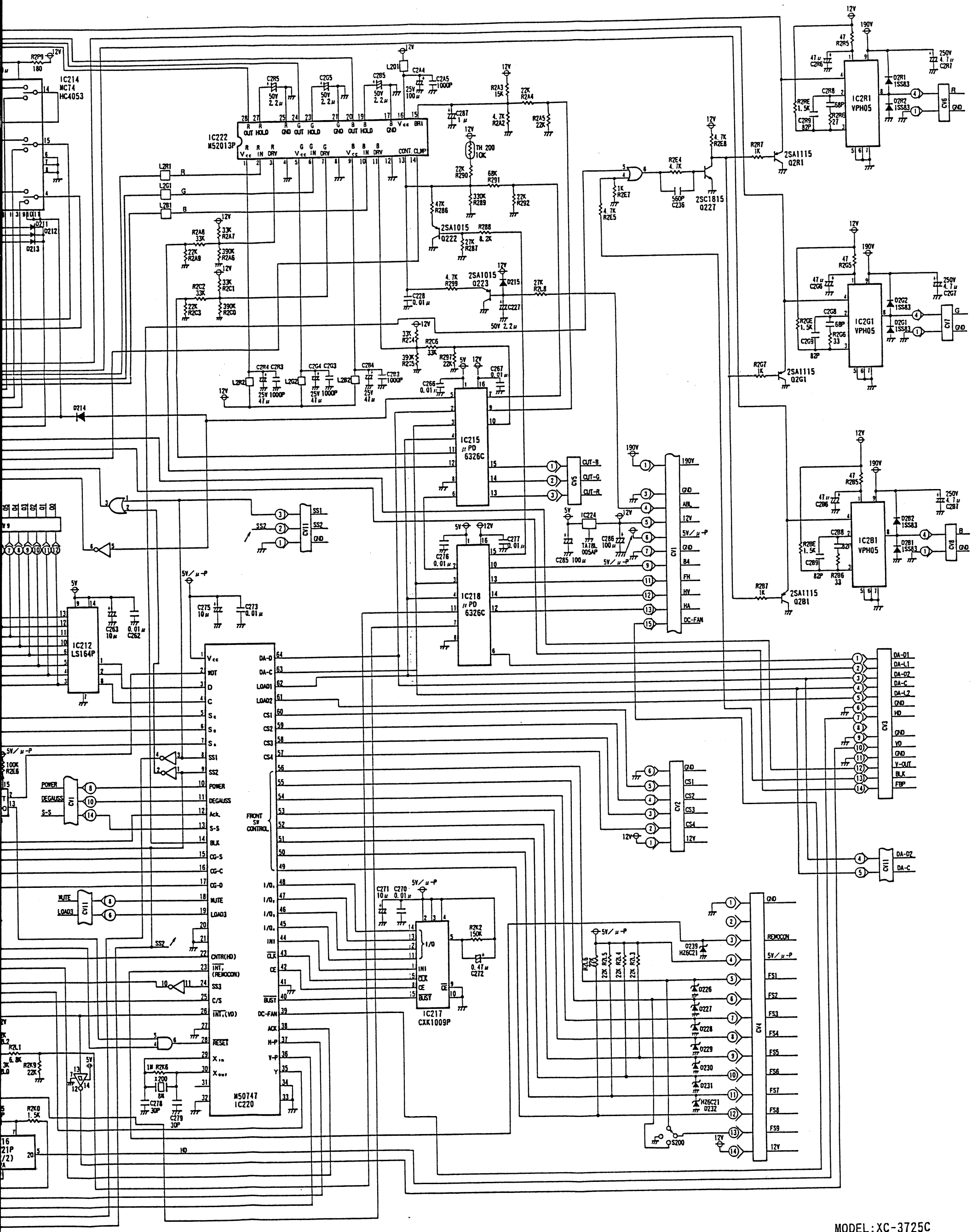
S205



MODEL:XC-3725C

VIDEO • CONTROL CIRCUIT

記事

DWG NO.

PCB-POWER CP2
240V
190V
GND
HEATER
GND
CC-5

L609
L610
L613
R601 2W 2.2
C623 50V 0.01M
C607 500V 0.01M
C608 250V 22M
C609 500V 0.01M
C610 250V 22M
R6RF 27K
R6RE 220
Q6R6 2SA1381
R6RG 100K
Q6R7 2SC2551
R6RH 15K

PCB-VIDEO CV5
GND
CUT OFF-R
CUT OFF-G
CUT OFF-B
CC-4

L608
R6RK 68K
R6RJ 22K
C6RA 1000P
R6RC 4.7K
C6RD 250V 4.7M
R6RQ 560K
C6RE 250V 4.7M

PCB-VIDEO CV6
R
GND
GND
CC-1

L6R2
L6R3 0.27M
C6R9 1000P
C6R8 250V 1M
D6R3 TVR1G/ES-1
R6RD 1/2W 180

R6GF 27K
R6GE 220
Q6G6 2SA1381
R6GG 100K
L607
R6GK 68K
Q6G7 2SC2551
R6GJ 22K
C6GA 1000P
R6GH 15K

R6GC 4.7K
C6GD 250V
R6GQ 560K
C6GE 250V 4.7M

PCB-VIDEO CV7
G
GND
GND
CC-2

L6G3 0.47M
L6G2
C6G9 1000P
D6G3 TVR1G/ES-1
C6G8 250V 1M
R6GD 1/2W 180

R6BF 27K
R6BE 220
Q6B6 2SA1381
R6BG 100K
L606
R6BK 68K
Q6B7 2SC2551
R6BJ 22K
C6BA 1000P
R6BH 15K

R6BC 4.7K
C6BD 250V 4.7M
R6BQ 560K
C6B 250 4.

PCB-VIDEO CV8
B
GND
GND
CC-3

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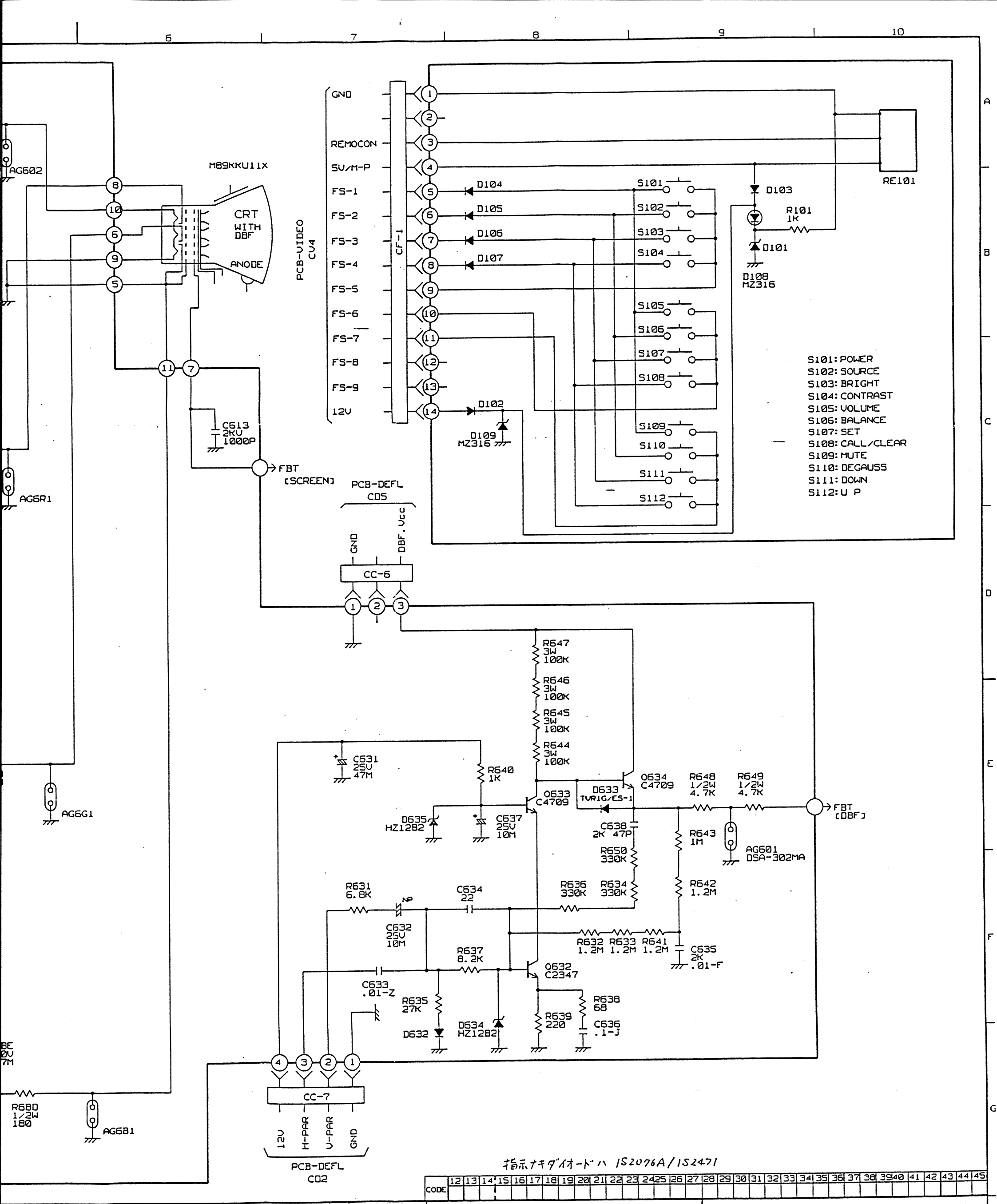
L6B2
C6B9 1000P
D6B3 TVR1G/ES-1
C6B8 250V 1M

CHANGE

⑤



指示ナキダイオードハ IS2076A/IS2471

CODE 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

控 / 出図用 / 外注用 / 計画 1	MITSUBISHI ELECTRIC CORPORATION NAGASAKI WORKS		
DIM. IN mm	DATE	'91- 8-24	APPROVED
SCALE : NTS	DRAWN		
	CHECKED		
	DESIGNED		

TITLE SCHEMATIC-DIAGRAM
PWB-CRT

CP980B519

RECOMMENDED SERVICE PARTS AND PRICE LIST

MODEL NO. : XC-3725C

ISSUE

PAGE

ITEM	SYMBOL NO.	DESCRIPTION / SPECIFICATION	PART NO.
291		ASSY PCB HV	CT920D93006
292		ASSY PCB SUB-HV	CT920D93007
293		ASSY PCB SW	CT920D92002
294		ASSY PCB RECEIVER	CT920D92003
295		ASSY PCB LED	CT920D92004
296		PACKING CASE	CP902C05801
297		PACKING CASE (BOTTOM·PALLET)	CP802C02304
298		CUSHION (TOP-LEFT & RIGHT)	CP803A02801
299		CUSHION (BOTTOM-LEFT & RIGHT)	CP803A02803
300		CUSHION (FRONT)	CP803C02103
301		JOINT (FOR PACKING CASE)	CP771C00301
302		JOINT (FOR PACKING CASE BOTTOM)	CP771C01001
303		ACCESSORY	CP871C02606

CBB·